

DIAGNOSES

Specierum novarum

in herbario Horti Regii Botanici Edinburgensis cognitarum.

CCCCI-CCCC.

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Acanthopale Dalzielii, W. W. Sm. Sp. nov.

Species affinis *A. oligantho* (Miq.) Clarke a qua foliis superiori-
bus sessilibus subglabris inter alia differt; ob formam pollinis
unà cum *Strobilanthe debili*, Hemsl. et *S. radicante*, T. Anders.
(in genere suo a cl. Clarke positis) collocanda.

Fruticulus fortasse ad 1 m. altus ramosus ramis gracilibus

flexuosis sparsim et minute pilosulis. Folia superiora tantum visa sessilia vel subsessilia, subaequalia vel valde inaequalia, majora ad 9 cm. longa, ad 4 cm. lata, minora 2-5 cm. longa, 1-2 cm. lata, ovata vel ovato-lanceolata, apice acuminata vel acuta vel rarius obtusa, basi rotundata, margine remotiuscule serrulata, in sicco membranacea, supra atroviridia lineolata glabra, infra pallidiora glabra vel ad nervos circ. 5-jugos sparsissime pilosula. Inflorescentiae terminales et ex axillis superioribus ortae 2-3 cm. longae spiciformes 2-4-florae remotiflorae; axis sparsim albido-pilosa; bractae lineari-lanceolatae foliaceae; pedicelli obsoleti vel brevissimi. Calyx circ. 1 cm. longus in lobos sublineares ad imum fissus, basi atque ad costulas loborum dense albo-pilosus. Corolla 4.5 cm. longa; tubus infra cylindricus supra sensim ampliatus, parte cylindrica circ. 1 cm. longa, extra minute pilosulus; lobi rotundati circ. 8 mm. diametro. Stamina perfecta 4, longiora paulo exserta; pollen echinatum. Fructus deest.

China:—At Thai-yong, a mountain valley, 2000 ft. elevation, 60 miles west from Swatow. July 1901. Dr. J. M. Dalziel. No. 71.

This species has the typical *Strobilanthes* habit, but has echinate pollen. Consequently, with many others noted by Clarke in King and Gamble's Materials for Flora of Malayan Peninsula (1907), 869, it comes under his genus *Acanthopale*. It differs from Lindau's *Pseudostenosiphonium* by the presence of 4 stamens instead of 2. See Clarke in Fl. Trop. Afr., v (1900), 60, 63, under *Distichocalyx* and *Acanthopale*.

Agapetes megacarpa, W. W. Sm. Sp. nov.

Species quoad folia *A. parviflorae*, Dunn subsimilis a qua floribus magnis longe distat; inter species regionis burmanico-chinensis calycis lobis longissimis bene notata, qui eis *A. macrophyllae*, Clarke sunt aequilongi.

Frutex ad 6 m. altus. Rami crassi glabri pallide cinerascetes. Folia sessilia vel petiolo crassissimo tantum 1-2 mm. longo suffulta; lamina 10-17 cm. longa, 2-4 cm. lata, lanceolata, apice acuta vel sensim et breviter acuminata, basi angusta rotundata, integra, papyracea, utrinque opaco-viridis, glabra, infra paulo pallidior, costa media subtu eminente, nervis lateralibus multis bene reticulatis in sicco subconspicuis. Inflorescentiae (fructiferae tantum visae) axillares fasciculato-corymbosae 2-4-florae; pedunculus circ. 1 cm. longus crassus; pedicelli in fructu 2-3 cm. longi, anguste claviformi-incrassati glabri in sicco pallide purpurascetes. Fructus subglobosus circ. 11-12 mm. diametro. Calycis lobi circ. 1 cm. longi, basi 3 mm. lati, lanceolati, acuti, rubido-purpurascetes nervis fere longitudinalibus pererrati.

"China:—Shweli-Salween divide, Yunnan, in open thickets. Lat. $25^{\circ} 6'$ N. Alt. 7000 ft. Shrub of 20 ft. Flowers creamy yellow? Calyces ruddy. April 1917." G. Forrest. No. 13,698.

Arabis alpina, Linn., var. *purpurea*, W. W. Sm. Var. nov.

Varietati *rubrocalyci*, Franch. simillima sed floribus saturate purpureo-roseis differt.

"China:—Yunnan, on the Bei-ma Shan. Lat. $28^{\circ} 12'$ N. Alt. 12,000 ft. Plant of 6–15 inches. Flowers deep purple-rose. On open rocks and cliffs. June 1917." G. Forrest. No. 13,977.

Arenaria barbata, Franch., var. *hirsutissima*, W. W. Sm. Var. nov.

A typo differt caulibus, foliis utraque facie, pedicellis, calycibus pilis longissimis albis densissime onustis.

"China:—Yunnan; Eastern flank of the Lichiang Range. Lat. $27^{\circ} 40'$ N. Alt. 11,000–12,000 ft. Plant of 6–10 inches. Flowers white or very pale rose. Dry open stony mountain meadows. Aug. 1910." G. Forrest. No. 6299.

Arenaria euodonta, W. W. Sm. Sp. nov.

Species affinis *A. quadridentatae*, Williams et *A. roseiflorae*, Sprague sectionis *Odontostemmatis*; ab illa foliis linearibus fere glabris, floribus duplo majoribus est distinguenda; ab hac valde affini foliis linearibus textura gramineis divergit.

Planta perennis ramosa diffusa. Radix elongata fusiformis caudice squamis induto. Caules e basi ramosi, suberecti vel ascendentes, 10–35 cm. alti, pilis articulatis albidis vel nigrescentibus plus minusve dense crispato-pubescentes. Folia 1–2 cm. longa, circ. 1 mm. lata, linearia, apice ipso obtusiuscula, basi paulo dilatata, membranacea punctis elevatis notata, ad margines et ad costam mediam infra plus minusve pilosula. Flores solitarii vel in cymas 3–5-floras dispositi albi vel pallide rosei; pedicelli ad 2.5 cm. longi pilis articulatis nigris dense induti; bracteae foliis similes sed triplo minores. Sepala circ. 8 mm. longa, 2.5 mm. lata, plus minusve oblonga, ciliata, extra nigrido-pilosula, interiora late scarioso-marginata. Petala circ. 1.5 cm. longa, oblanceolata, apice 2–3-dentata, alba vel pallide rosea. Stamina 10 calycem paulo excedentia filamentis glabris. Ovarium oblongum 3–4 mm. longum stylis duobus circ. 4 mm. longis munitum.

"China:—Yunnan, Kari Pass, Mekong-Yangtze divide. Lat. $27^{\circ} 40'$ N. Alt. 13,000 ft. Matted plant of 9–14 inches. Flowers white. Open situations on and amongst boulders. July 1914." G. Forrest. No. 12,891.

"S. E. Tibet :—On Doker-La, Mekong-Salween divide. Lat. 28° 20' N. Alt. 12,000 ft. Plant of 4-8 inches. Flowers pale rose-pink. On open stony pasture and screes. Aug. 1917." G. Forrest. No. 14,640.

The nearest relative of this species is *A. roseiflora*, Sprague, a plant of the Mekong-Salween divide. The flowers of the two species are extremely alike. The leaves of Forrest No. 13,225 * and Ward No. 901 are thick and fleshy, and are broader than those of *A. euodonta*. The leaves of *A. euodonta* in the dried state are thin and grass-like. The species may be an extreme form of *A. roseiflora*, but in the absence of intermediates I prefer to keep them separate.

***Arenaria inornata*, W. W. Sm. Sp. nov.**

Species affinis *A. roseiflorae*, Sprague a qua habitu nano, calyce multo minore, corolla alba inter alia removitur.

Planta perennis nana. Radices numerosae anguste fusiformi-incrassatae; caudex squamis indutus. Caules 1-3, erecti vel suberecti, 5-6 cm. alti, pilis articulatis albidis vel fulvidis vel tandem nigrescentibus plus minusve dense pubescentes. Folia inferiora squamiformia imbricata cauli adpressa; superiora in petiolum vix discretum late marginatum dense albo-ciliatum attenuata, 1-1.3 cm. longa, 3-4 mm. lata, lanceolata vel elliptico-lanceolata, apice obtusiuscula vel subacuta, margine ciliata tandem glabrescentia, utrinque glabra vel fere glabra, tenuiter papyracea. Flores solitarii vel in cymas trifloras dispositi albi; pedicelli ad 1 cm. longi pilis articulatis nigris dense induti; bractee foliis similes. Sepala exteriora circ. 5 mm. longa, 1-1.5 mm. lata, oblongo-lanceolata, obtusa, extra ad basim et ad medium et ad margines dense glanduloso-pilosula, interiora late scarioso-marginata. Petala circ. 1 cm. longa, obovata, apice breviter emarginata et saepius paucidenticulata. Stamina 10 calycem paulo superantia filamentis glabris; glandulae ut in sectione *Odontostemmate*. Ovarium 2 mm. longum stylis duobus circ. 4 mm. longis instructum. Fructus deest.

"China :—N.W. Yunnan, on the Mekong-Salween divide. Lat. 28° 12' N. Alt. 12,000 ft. Plant of 2-3 inches. Flowers white. On boulders and ledges of cliffs. July 1917." G. Forrest. No. 14,444.

***Arenaria napuligera*, Franch., var. *monocephala*, W. W. Sm. Var. nov.**

Haec planta a typo differt caule simplice, floribus solitariis, stylis duobus; inter *A. napuligeram*, Franch. et *A. ionandram*,

* Vid. *A. roseiflora*, Sprague in Kew Bull. (1916), 33.

Diels intermedia esse videtur ; ab *A. ionandra* floribus solitariis, calyce pilosulo differt.

"S.E. Tibet:—At Ka-gwr-pw temple, near the Yunnan frontier ; in Alpine turf on precipices. Alt. 15,500 ft. July 1913." F. K. Ward. No. 814.

This appears to be an extreme alpine form of *A. napuligera*, Franch. The presence of two styles instead of three may, however, be a fundamental difference. In his description of *A. ionandra*, Diels* points out that his species is closely related to *A. napuligera*, differing in the glabrous sepals and two styles. Further material from Yunnan tends to bridge the gap between the two species. Thus in Forrest No. 6192 the two species appear on the same sheet, collected together in the Lichiang Range. I find a transition in the hairiness of the calyx and in the number of styles. Specimens with solitary flowers occur in the same gathering.

***Arenaria oresbia*, W. W. Sm. Sp. nov.**

Species inter himalaicas et chinenses affines bene distincta ; quoad habitum foliaque haud remota ab *A. lichiangensi*, W. W. Sm. a qua pedunculis elongatis foliatis atque floribus multo majoribus longe recedit.

Planta densissime pulvinata glebam 7-8 cm. diametro formans. Caudex lignosus polycephalus, foliorum reliquiis densissime indutus. Cauliculorum sterilium pars viridis brevissima, pars hypogaea praelonga foliis emarcidis induta ; caules floriferi ad 10 cm. longi erecti flexuosi foliorum paribus 3-4 remotis muniti, plus minusve dense fulvido-pubescentes. Folia basalia dense conferta, 10-15 mm. longa, 1-1.5 mm. lata, linearia, pungentia, rigida, glabra, margine albido-marginata et indurata et minute asperulata ; folia caulina inferiora basalibus similia, superiora circ. 1 cm. longa, dorso pubescentia, margine molliter et dense ciliata. Flores solitarii albi subnutantes ; pedicelli circ. 1 cm. longi dense fulvido-pubescentes. Calyx basi rotundatus vix incrassatus ; sepala 6-7 mm. longa, 3-5 mm. lata, ovata vel ovato-lanceolata, apice rotundata, pubescentia et margine dense atque molliter ciliata, ultimo subglabra vel glabra. Petala 13-15 mm. longa, late obovata, vulgo integra. Stamina 10 calycem aequantia glandulis alternantia. Ovarium ovoideum subnitens stylis tribus brevibus coronatum. Capsula matura calycem paulo superans ; semina desunt.

"China:—Yunnan, mountains of the Chungtien plateau, S.E. of Chungtien. Lat. 27° 55' N. Alt. 11,000-12,000 ft. Cushion plant of 2-5 inches. Flowers white. Ledges and crevices of limestone cliffs. July 1913." G. Forrest. No. 10,459.

* Diels in Notes R.B.G., Edin., v (1912), 182.

A very beautiful species akin to *A. lichiangensis*, W. W. Sm., and to *A. Przewalskii*, Maxim. Its habit recalls that of a large-flowered cushion saxifrage.

***Arenaria pogonantha*, W. W. Sm. Sp. nov.**

Species affinis *A. barbatae*, Franch. a qua habitu nano multicauli, caulibus simplicibus, foliis multo minoribus dense fulvo-hirsutis, inflorescentiis paucifloris est diversa.

Planta perennis multicaulis. Radix anguste fusiformis apice squamis induta. Caulis erecti vel suberecti, flexuosi, 7-15 cm. alti, pilis longis articulatis glandulosis fulvidis et nigrescentibus dense induti. Folia basalia desunt; caulina circ. 5 mm. longa, circ. 3 mm. lata, ovata vel ovato-lanceolata, apice obtusiuscula, basi in petiolum 1-2 mm. longum attenuata, integra, textura firma, utraque facie et ad margines pilis longis fulvidis hirsuta, utrinque punctis minutis asperulata. Inflorescentiae 1-3-florae; flores albi; pedicelli ad 2.5 cm. longi hirsuti; bractee foliaceae 2-3 mm. longae. Sepala circ. 4 mm. longa, ovata, apice obtusa, margine scariosa, dorso pilis fulvidis dense hirsuta. Petala 7-8 mm. longa, late obovata, margine multidenticulata. Stamina 10, calycem paulo excedentia filamentis glabris. Ovarium ovoideum circ. 3 mm. longum stylis duobus 2.5 mm. longis munitum.

"China:—Yunnan, on the western flank of the Shweli-Salween divide. Lat. 25° 20' N. Alt. 10,000 ft. Plant of 3-5 inches. Flowers creamy white. Stony pasture and on rocks. Aug. 1912." G. Forrest. No. 8935.

***Arenaria xerophila*, W. W. Sm. Sp. nov.**

Species affinis *A. longistylae*, Franch. a qua radice tuberosa, foliis majoribus acutis nec apiculatis, sepalis vix apiculatis inter alia divergit; ab *A. linearifolia*, Franch. foliis diversis recognoscitur; ab *A. szechuensi*, Williams foliis multo majoribus, petalis calycem aequantibus inter alia differt.

Planta perennis ramosa diffusa. Radix tubercula fusiformia plura producens. Caules a basi ramosi ramulis pseudo-dichotome patentibus suberecti vel ascendentes, 7-20 cm. alti, plus minusve albido-pilosuli, tarde glabrescentes. Folia 1.5-3.5 cm. longa, 4-8 mm. lata, oblanceolata, apice acuta sed haud apiculata basi in petiolum vix discretum attenuata, breviter connata, integra, textura firma subpapyracea, utrinque subglauca, glabra nisi ad basim sparsim pilosulam, utraque facie punctis parvis notata. Flores in cymas laxissimas paucifloras dispositi vel rarius subsolitarii, albi; pedicelli ad 3 cm. longi dense pilosuli; bractee foliis subsimiles sed multo minores. Sepala circ. 6 mm. longa, ovato-lanceolata, obtusa, basi dense pilosula, medio viridia,

costula ipsa tantum pilosula, marginibus late scariosa sparsim ciliolata. Petala circ. 8 mm. longa, late obovata, apice rotundata integra. Stamina 10 calycem subaequantia filamentis glabris. Ovarium fere globosum stylis duobus 4-5 mm. longis praeditum.

"China:—Yunnan, in the mountains in the N.E. of the Yangtze bend. Lat. $27^{\circ} 45' N$. Alt. 10,000 ft. Plant of 3-4 inches. Flowers white. Limy pasture and ledges of limestone cliffs. Sept. 1913." G. Forrest. No. 10,998.

"China:—N.W. Yunnan, in the A-tun-tsu valley. Lat. $28^{\circ} 28' N$. Alt. 11,000 ft. Plant of 4-8 inches. Flowers white. Open dry pasture. Aug. 1914." G. Forrest. No. 13,210.

Berberis concolor, W. W. Sm. Sp. nov.

Species valde affinis *B. Vernae*, Schneider, a qua foliis concoloribus magis coriaceis, floribus duplo majoribus recedit.

Frutex 1-2 m. altus compactus. Ramuli glabri teretes vel subteretes, cinerascetes, lenticellis nigris sparsis notati; internodia 1-2 cm. longa; spinae simplices 1-1.5 cm. longae gracillimae flavescentes. Folia 5-10-fasciculata, in eodem fasciculo saepe inaequalia, in petiolum brevem attenuata, 1-2 cm. longa, 3-5 mm. lata, plerumque oblanceolata, apice rotundata vel obtusa breviter mucronata, basi cuneata, margine integra, tenuiter coriacea, concoloria, laxa reticulata nervis utrinque eminentibus. Inflorescentiae densiflorae graciles cum pedunculo ad 1.5 cm. longo ad 4 cm. longae, plus minusve nutantes, glabrae; flores lutei sat magni, complanati 7-8 mm. diametro; pedicelli ad 7 mm. longi gracillimi, basi bracteis subulatis instructi. Sepala exteriora late ovata obtusa circ. 3 mm. longa; interiora obovata circ. 5 mm. longa. Petala 4 mm. longa, obovata, apice incisa, basi breviter unguiculata, glandulis normalibus praedita. Stamina circ. 3 mm. longa. Ovarium cum stylo brevi circ. 3 mm. longum, ovulis duobus. Fructus deest.

"China:—N.W. Yunnan; Tung-chu-ling, 10,000 ft., and A-tun-tsu, 12,000 ft. In the shrub belt on dry exposed hill-sides. Compact bush of 4-6 ft. loaded with flowers in full bloom. May 31st, 1913." F. K. Ward. No. 315.

The following is a variety with obovate leaves about 18 mm. long, 9 mm. broad, occasionally with one or two teeth on the margin:—

"E. Tibet:—At Doker-la in the shrub belt at 13,000 ft. July 1913." F. K. Ward. No. 707.

This very floriferous little species of the *Sinensis* group is closely allied to *B. Poiretii*, Schneider, and to *B. Vernae*, Schneider. Of these it comes nearest to *B. Vernae*, which has very small flowers. The variety with the broader leaves but quite similar inflorescence and flower-structure approaches *B. aggregata*,

Schneider, which has fine hairs on the young shoots and peduncles.

Berberis favosa, W. W. Sm. Sp. nov.

Species affinis *B. subcaulialatae*, Schneider et *B. Stapfianae*, Schneider a quibus habitu nano prostrato, inflorescentiis paucifloris inter alia divergit.

Fruticulus nanus prostratus vix 30 cm. altus ramosus; ramuli juniores angulati glabri vel hic illic minutissime puberuli, vetustiores cinerascens; spinæ trifidae graciles circ. 1 cm. longæ. Folia in petiolum brevissimum attenuata, subpersistentia, papyracea, 5-12-fasciculata, 1-2 cm. longa, 3-4 mm. lata, oblanceolata, apice subobtusata et mucronata vel acuta vel subrotundata et fere emucronata vel nonnunquam late tricuspidata, basi cuneata, margine integra paulo revoluta, supra viridia, subtus paulo pruinosa, papillosa, utrinque favoso-reticulata costa media inter rugas indistinctissima. Inflorescentiæ foliis breviores 1-7-floræ, breviter fasciculato-racemosæ; pedicelli 4-8 mm. longi, rubidi, basi bracteis squamiformibus apiculatis circ. 1 mm. longis muniti. Flores flavidi 3-4 mm. diametro. Sepala exteriora late ovata 2-3 mm. longa, interiora late elliptica vel suborbicularia 4.5 mm. longa. Petala obovata circ. 4 mm. longa, apice breviter emarginata, basi breviter unguiculata, glandulifera. Stamina circ. 3 mm. longa. Ovarium 3 mm. longum ovulis tribus. Fructus deest.

"Upper Burma:—Hpimaw, in open situations on ridge amongst boulders at 7000 ft.; a prostrate dwarf shrub rising less than a foot from the limestone rock over which its long branches trail. August 1914." F. K. Ward. No. 1852.

Of the now numerous and closely allied species of this group, the above comes nearest to *B. Stapfiana*, Schneider.

Berberis replicata, W. W. Sm. Sp. nov.

Species valde affinis *B. sanguineae*, Franch. a qua foliis multo minoribus revolutis inter alia divergit.

Frutex 1-1.5 m. altus. Ramuli juniores glabri teretes pallido-flavidi, vetustiores cinerei; internodia 1.5-2.5 longa; spinæ 3-fidae 1-1.5 cm. longæ pallido-flavidae. Folia 3-5-fasciculata, in petiolum brevissimum contracta, 2-3.5 cm. longa, 3-5 mm. lata, lineari-lanceolata, apice acuta longiuscule mucronata, basi cuneata, margine spinis (1-6 paribus) circ. 1 mm. longis praedita, saepe espinosa, ita revoluta ut spinæ saepe difficiles visu sint, supra opaco-viridia costa media multo impressa nervatione obscura, infra pruinosa costa media eminente straminea nervis lateralibus subobsoletis. Flores 2-8-fasciculati, complanati circ. 7 mm. diametro aurei; pedicelli 1-1.3 cm. longi graciles rubridi

basi bracteis late triangularibus acuminatis muniti. Sepala exteriora late ovata circ. 3 mm. longa, late pellucido-marginata, in sicco saepe medio sanguinea, interiora suborbicularia circ. 4 mm. diametro margine pellucida. Petala vix 4 mm. longa, late obovata, apice emarginata, basi breviter unguiculata glanduligera. Stamina ad sinum petalorum attingentia. Ovarium ovulis 2 praeditum, stylo brevissimo, stigmatе latiusculo. Fructus ovatus circ. 5 mm. longus, 4 mm. latus, kermesinus vel scarlatinus tandem fere niger; semina 1-2.

"China:—W. Yunnan, Ma-chang-kai valley, north of Teng-yueh. Lat. $25^{\circ} 20' N$. Alt. 6000-7000 ft. Spinous shrub of 5 ft. Flowers golden yellow. Rocky open situations. Feb. 1913." G. Forrest. No. 9545.

"Ma-chang-kai valley. Lat. $25^{\circ} 30' N$. Alt. 7000-8000 ft. Spinous shrub of 4 ft. Fruits dark crimson, almost black. Open situations amongst scrub. Dec. 1912." G. Forrest. No. 9547.

"Lava bed west of Teng-yueh, Yunnan. Lat. $25^{\circ} N$. Alt. 5000 ft. Spinous shrub of 3-4 ft. In fruit. Fruits crimson. Open situations amongst scrub. May 1912." G. Forrest. No. 7785.

"Hills to the north-east of Teng-yueh. Lat. $25^{\circ} 10' N$. Alt. 6000-7000 ft. Spinous shrub of 2-4 ft. In fruit. Fruits scarlet. Open situations amongst scrub. July 1912." G. Forrest. No. 8782.

"Shweli-Salween divide, Yunnan. Lat. $25^{\circ} 30' N$. Alt. 11,000 ft. Spinous shrub of 4-5 ft. In fruit. Fruits deep crimson. In open scrub. Oct. 1917." G. Forrest. No. 16,030.

This new species is closely allied to *B. sanguinea*, Franch. in appearance and in structure of flower. The smaller leaves are strongly revolute, so much so that, viewed from above, the teeth of the margin are not visible. Forrest collected the plant four times in the area round Teng-yueh. I do not find it matched in any collections from the rest of Yunnan.

Braya heterophylla, W. W. Sm. Sp. nov.

Species habitu *B. alpinae*, Sternb. et Hoppe; foliis radicalibus longe et graciliter petiolatis, foliis caulinis subnumerosis oblongis, petalis minimis, fructu glabro inter alia bene notata.

Planta 7-15 cm. alta erecta perennis. Radix fusiformi-incrassata multiceps. Caules 2-5, pro genere bene foliati, glabri. Folia basalia et caulina infima petiolo 1.5-3 cm. longo gracillimo basi vaginante suffulta; lamina 6-12 mm. longa, 5-8 mm. lata, late elliptica vel subcordiformis, obtusa, basi plus minusve rotundata, membranacea glabra; folia caulina superiora 4-8, circ. 1.5 cm. longa, 3-4 mm. lata, oblonga vel oblongo-

lanceolata, obtusiuscula, sessilia. Inflorescentia capitato-corymbosa 20-24-flora, ebracteata. Sepala circ. 2 mm. longa, oblonga, obtusa, atroviridia, margine pergamentacea, glabra. Petala circ. 2 mm. longa, spathulata, albida. Stamina edentula libera. Siliqua vix matura lineari-oblonga, circ. 8 mm. longa, paulo curvata glabra, stylo brevi, stigmatibus capitato, seminibus 4-6, septo deficiente.

"China:—On the Bei-ma Shan, Yunnan, on ledges of cliffs and humus-covered boulders. Lat. 28° 12' N. Alt. 14,000 ft. Plant of 3-6 inches. Flowers white. July 1917." G. Forrest. No. 14,385.

Braya verticillata, W. W. Sm. Comb. nov.

Cardamine? *verticillata*, Jeffrey et W. W. Sm. in Notes Roy. Bot. Gard. Edin., viii (1913), 120.

"China:—N.W. Yunnan, near A-tun-tsu, at an altitude of 15,000 ft. July 1911." F. K. Ward. No. 17.

"On the Bei-ma Shan, Yunnan, on open stony moorland. Lat. 28° 12' N. Alt. 15,000 ft. Plant of 1-2 inches. Flowers white, fragrant. June 1917." G. Forrest. No. 13,968.

"Tibet:—Tsarong, on the Ka-gwr-pw, Mekong-Salween divide, on screes and ledges of cliffs. Lat. 28° 25' N. Alt. 14,000-15,000 ft. Plant of 3-4 inches. Flowers white or pale rose-lavender; fragrant. July 1917." G. Forrest. No. 14,490.

The material now available has immature fruits which show that the plant cannot be placed in *Cardamine*, and that it is congeneric with *Braya sinensis*, Hemsl. and *B. uniflora*, Hook. f. et Thoms.

Camelina yunnanensis, W. W. Sm. Sp. nov.

Species affinis *C. albiflorae*, Boiss. et *C. microcarpae*, Andr. ; foliis plus minusve incisis, floribus minoribus laete flavis notata.

Planta 30-60 cm. alta, annua, pilosa. Caulis bene foliatus pilis albidis praesertim ad partem inferiorem plus minusve dense indutus. Folia basalia . . . ; caulina inferiora circ. 5 cm. longa, 1 cm. lata, ambitu lanceolata, runcinato-incisa, lobo terminali denticulato circ. 3 cm. longo, acuta, basi cordato-auriculata, membranacea, supra pilis albidis conspersa, infra ad costam densissime pilosa, ceteroquin mediocriter pilis praedita; caulina superiora 3-4 cm. longa, 3-4 mm. lata, lanceolato-lineariter vel lineariter, acuminata, cordato-auriculata, grossiuscule denticulata. Racemi circ. 6 cm. longi multiflori inflorescentiam paniculatam circ. 20 cm. longam formantes. Flores parvi. Sepala circ. 1.5 mm. longa, cymbiformia obtusa pallido-flava. Petala spathulata circ. 1 mm. longa laete flava. Stamina 1.5

mm. longa. Ovarium 1.5 mm. longum ovoideum stylo 0.5 mm. longo. Capsula immatura.

"China:—Sung-kwei valley, Yunnan, in dry open pasture. Lat. 26° 15' N. Alt. 6000 ft. Plant of 1–2 ft. Flowers bright yellow. May 1917." G. Forrest. No. 13,776.

The above appears to be the first species of *Camelina* recorded from China.

***Cardamine calcicola*, W. W. Sm. Sp. nov.**

Species habitu *C. pratensis*, Linn. et in conspectu Schulziano* prope eam speciem ponenda sed foliis radicalibus simplicibus praedita; affinitas vera est fortasse cum *C. insigni*, O. E. Schulz sociisque ejus sed foliis caulinis bijugis divergit.

Rhizoma caespitosum. Caulis 15–30 cm. longus, erectus, simplex, remote 2–4-folius, pilis patentibus incanis subsparsim indutus. Folia radicalia circ. 10, petiolo ad 10 cm. longo sparsim incano praedita, simplicia, reniformia, circ. 2 cm. longa, circ. 2.5 cm. lata, antice crenis latis circ. 7-crenata, basi alte cordata, papyracea, utrinque subconcoloria vel nonnunquam infra rubescentia, supra glabra vel subglabra papillosa, infra ad nervos sparsim albido-pilosa; folia caulina 2–4, petiolo 1–2 cm. longo pilosulo praedita, bijuga, 2–2.5 cm. longa et lata; foliola 1 cm. paulo excedentia, vulgo 5–8 mm. lata, vix vel breviter petiolulata, obovata, integra vel supra medium dentibus duobus praedita, supra glabra vel sparsim pilosula, infra pilosuliora; foliolulum terminale sessile, lateralibus paulo majus. Racemus (in fructu) circ. 10 cm. longus, 15–20-florus, ebracteatus, sparsim pilosulus. Pedicelli fructiferi ad 1.5 cm. longi, fere erecti, sparsim pilosuli. Flores non visi. Siliquae suberectae, ad 25 mm. longae, 1–1.2 mm. latae, in stylum circ. 2 mm. longum attenuatae; stigma conspicuum stylo sublatius; valvae stramineae vel violaceae. Semina circ. 1.5 mm. longa, 1 mm. lata, oblongo-ovalia, brunnea.

"China:—Yunnan, mountains in the N.E. of the Yangtze bend. Lat. 27° 45' N. Alt. 11,000–12,000 ft. Plant of 6–12 inches. In fruit. Crevices of limestone cliffs. July 1913." G. Forrest. No. 10,471.

***Cardamine scoriarum*, W. W. Sm. Sp. nov.**

Species haec quoad habitum *C. macrophyllam*, Willd. in mentem vocat sed foliis trifoliolatis divergit; in conspectu Schulziano† in vicinitatem *C. fragariifoliae*, O. E. Schulz ponenda sed affinitas est cum *C. macrophylla*, Willd. Radix descendens incrassata. Caulis 30–90 cm. altus, erectus, simplex vel superne

* Engl. Bot. Jahrb., xxxii (1902), p. 337.

† Ibid., 334.

pauciramosus, remotiuscule 10–20-folius, foliis inferioribus vulgo delapsis, glaber vel subglaber. Folia radicalia et inferiora desunt; superiora petiolo ad 5 cm. longo alato sparsim albos pilosulo praedita, trifoliolata; raro foliolum quartum in medio petiolo additum; foliola subaequalia, petiolulo 2–3 mm. longo pilosulo instructa, anguste ovata, circ. 6 cm. longa, circ. 3 cm. lata, apice acuta vel subacuminata, basi in petiolulum cuneata, margine subalte serrata, serraturis apiculatis, in sicco membranacea, utrinque plus minusve setaceo-pilosula. Racemus florifer corymbosus, deinde elongatus, 20–30-florus. Pedicelli floriferi inferiores circ. 1 cm. longi minute et sparsim pilosuli. Flores 8–10 mm. longi. Sepala 4 mm. longa, 2 mm. lata, oblonga, obtusa. Petala pallide rosea, obovata, ungue 2–3 mm. instructa, vix emarginata. Stamina longiora ad 5 mm. longa antheris 1 mm. longis. Ovarium cylindricum ad 4 mm. longum glabrum; stigma stylo latius. Fructus maturus deest.

"China:—Yunnan; flank of volcanic mountain to north-west of Teng-yueh. Lat. 25° 10' N. Alt. 7000 ft. Plant of 2–3 ft. Flowers pale rose. Moist shady situations in thickets. June 1912." G. Forrest. No. 8201.

"Yunnan; divide between the Shweli and Teng-yueh valleys. Lat. 25° N. Alt. 6000–7000 ft. Plant of 1–2½ ft. Flowers pale magenta-rose. Moist shady situations on the margins of thickets. May 1912." G. Forrest. No. 7947.

***Deutzia dumicola*, W. W. Sm. Sp. nov.**

Species affinis *D. asperae*, Rehder et *D. discolori*, Hemsl.; ramulis asperatis, foliis parvis acutis haud acuminatis paucinerviatis breviter petiolatis notata.

Frutex ad 2 m. altus; ramuli graciles hornotini et annotini pilis stellatis densis asperati. Folia petiolo 1–2 mm. longo dense stellato-piloso suffulta; lamina 15–25 mm. longa, 8–18 mm. lata, ovata vel ovato-lanceolata, apice plus minusve acutata, basi rotundata vel late cuneata, margine serrulata, membranacea, utrinque tactu scabridula, supra opaco-viridis pilis stellatis 4–7-radiatis densiuscule conspersa, subtus vix pallidior pilis 5–10-radiatis subdense conspersa, nervis 3–4 paribus. Cymae pauciflorae, plerumque 3–5-florae, ramulos breves e ramo longo virgato ortos terminantes, sessiles vel breviter pedunculatae; pedicelli ad 5 mm. longi, pilis stellatis asperati. Calyx circ. 3 mm. longus, dentibus triangulari-lanceolatis tubum aequantibus vel paululo brevioribus, crustaceo-stellato-pilosus. Petala 6–7 mm. longa, oblonga, alba, extra stellato-pilosa. Stamina petalis fere dimidio breviora, filamentis exterioribus apice bidentatis antheram vix superantibus, interioribus apice bifidis

antheram circa medium affixam gerentibus. Styli 4-5 staminibus paulo breviores. Fructus deest.

"China:—Yangpi valley, Yunnan, in open scrub. Lat. 25° 25' N. Alt. 5000 ft. Shrub of 4-6 ft. Flowers white. April 1917." G. Forrest. No. 13,702.

"Yangpi valley, on rocks amidst scrub. Lat. 25° 40' N. Alt. 6000-7000 ft. Shrub of 4-6 ft. Flowers white. May 1913." G. Forrest. No. 9904.

"Hsia-kuan valley, Yunnan, in open scrub. Lat. 25° 40' N. Alt. 5000-6000 ft. Shrub of 4-6 ft. Flowers white. April 1914." G. Forrest. No. 12,359.

The affinity of this species is possibly with *D. Monbeigii*, W. W. Sm., and members of the subsection *Cymosae* of Rehder.

***Deutzia Monbeigii*, W. W. Sm. Sp. nov.**

Species affinis *D. stamineae*, Br. a qua foliis atque calycis lobis differt; apud species chinenses in vicinitatem *D. coriaceae*, Rehder et *D. crassifoliae*, Rehder ponenda; foliis parvis ovatis vel ovato-lanceolatis subtus albidis crustaceo-stellato-pilosis bene notata.

Frutex 1-1.5 m. altus ramulis gracilibus hornotinis rufo-brunneis densiuscule stellato-pilosis, annotinis rubidis, vetustis cinerascentibus. Folia petiolo circ. 2 mm. longo dense stellato-piloso instructa; lamina plerumque 14-18 mm. longa, 7-8 mm. lata, ovata vel ovato-lanceolata, apice obtusa vel subacutata haud acuminata, basi rotundata vel late cuneata, margine minute denticulata, subcoriacea utrinque tactu scabridula, supra opaco-viridis pilis 5-8-radiatis densiuscule induta, infra indumento albedo crustaceo pilis 12-14-radiatis composito dense oblecta, utrinsecus 3-4-costata. Cyma 5-12-flora, plerumque circ. 7-flora, breviter pedunculata vel fere sessilis axibus rufo-brunneis stellato-pilosis; pedicelli graciles tubum calycis superantes vel subaequant. Calyx circ. 3 mm. longus crustaceo-stellato-pilosus, dentibus circ. 1 mm. longis triangularibus. Petala circ. 9-10 mm. longa, circ. 4 mm. lata, oblonga vel obovata, alba, extra stellato-pilosa, aestivatione valvata. Stamina circ. 5 mm. longa; dentes exteriorum ad basim antherarum attinentes; dentes interiorum antheris breviores. Styli 3-4 stamina fere aequantes. Fructus (si planta Forrestiana huc recte allocata) subglobosus, circ. 3 mm. longus, 2.5 mm. latus, crustaceo-stellato-pilosus, calycis dentibus persistentibus.

"China:—Tseku, N.W. Yunnan. May." Monbeig. No. 7 (1912), in Herb. Edin.

"Wei Hsi valley, Yunnan, in open scrub. Lat. 27° 18' N. Alt. 10,000 ft. Shrub of 3-5 ft. In fruit. Nov. 1917." G. Forrest. No. 15,631.

Draba incana, Linn., var. **microphylla**, W. W. Sm. Var. nov.

Habitu gracillimo, foliis caulinis circ. 5 mm. longis integris, ovario glabro bene notata. Planta circ. 12 cm. alta caulibus subflexuosis.

"E. Tibet:—On rocks at 13,000 ft. near Ka-gwr-pw Temple, close to Chinese frontier. July 1913." F. K. Ward. No. 885.

Draba involucrata, W. W. Sm. Sp. nov.

Draba alpina, Linn., var. *involucrata*, W. W. Sm., in Notes Roy. Bot. Gard. Edin., viii (1913), 121.

Species affinis *D. alpinae*, Linn. a qua habitu, stylo longiusculo, fructu diverso recedit.

Planta 2.5–7.5 cm. alta dense caespitosa. Caules numerosi caespitem densum formantes multo intertexti pro maxima parte subhypogaei vaginis emarcidis albidis induti. Folia eis *D. alpinae* subsimilia, 3–8 mm. longa, circ. 3 mm. lata, oblanceolata vel obovata, pilis furcatis et stellatis conspersa vel longiuscule ciliata vel tandem glabra. Inflorescentia plerumque 3–5-flora 2 cm. raro superans; scapus aphyllus pilis furcatis plus minusve dense obsitus; pedicelli inferiores 4–5 mm. longi. Sepala circ. 2 mm. longa elliptica obtusa glabra vel dorso pilis furcatis conspersa pallide viridia. Petala 4–5 mm. longa obovata emarginata laete aurea. Ovarium ovatum glabrum stylo longiusculo nonnunquam ovarium subaequante. Fructus ellipticus circ. 9 mm. longus, 4 mm. latus, stylo circ. 2 mm. longo coronatus, saepe semitortus, glaber, nitenti-viridis; semina vulgo 4–8.

"China:—Eastern flank of the Lichiang Range, Yunnan, in crevices and edges of moist limestone cliffs. Lat. 27° 25' N. Alt. 11,000–12,000 ft. Tufted plant of 1–3 inches. Flowers bright golden yellow. June 1910." G. Forrest. No. 5732.

"Western flank of the Lichiang Range, in crevices of limestone cliffs. Lat. 27° 20' N. Alt. 12,000 ft. Plant of 1–2 inches. Flowers yellow. June 1910." G. Forrest. No. 5829.

"Eastern flank of the Lichiang Range, on boulders and limestone drift. Lat. 27° 40' N. Alt. 15,000–16,000 ft. Matted plant of 1 inch. Flowers golden yellow. July 1910." G. Forrest. No. 6138.

"A-tun-tsu, N.W. Yunnan, 15,000–16,000 ft. An alpine grassland plant growing among dwarf rhododendrons. July 1911." F. K. Ward. No. 18.

"Ka-gwr-pw, S.E. Tibet, on rocks and screes at 16,000 ft. July 1913." F. K. Ward. No. 823.

"On the Bei-ma Shan, Yunnan, in open moist rocky pasture. Lat. 28° 12' N. Alt. 15,000 ft. Semi-cushion plant of 1 inch.

Flowers deep golden yellow, fragrant. June 1917." G. Forrest. No. 13,969.

"Mekong-Salween divide, Yunnan, on open cliffs and moist stony pasture. Lat. $28^{\circ} 20'$ N. Alt. 14,000 ft. Matted plant of 1-2 inches. Flowers deep orange-yellow. July 1917." G. Forrest. No. 14,086.

"On the Bei-ma Shan, Yunnan, in open moist stony pasture and on boulders and cliffs. Lat. $28^{\circ} 12'$ N. Alt. 13,000 ft. Matted plant of 1-2 inches. In fruit. Aug. 1917." G. Forrest. No. 14,669.

Also Aug. 1917. G. Forrest. No. 15,167.

The following appears to be a form of the above, with more pilose scapes and a dark green calyx:—

"Mekong-Salween divide, Yunnan, in open stony pasture and on ledges of cliffs. Lat. $28^{\circ} 12'$ N. Alt. 14,000 ft. Plant of 1-2 inches. Flowers golden yellow. July 1917." G. Forrest. No. 14,360.

The earlier specimens were at first placed under *D. alpina*, Linn., but with additional material including fruit now available, it is preferable to give the plant specific rank. It is very different in its low caespitose habit, its long style, and twisted shining fruit. It is possibly the same as *D. alpina*, Linn., var. *leiophylla*, Franch. (Plant. Delav., p. 59), which I have not seen.

***Draba jucunda*, W. W. Sm. Sp. nov.**

Species affinis *D. involucreatae*, W. W. Sm. a qua floribus majoribus, stylo longiore, ovario oblongo dense albo-setosulo differt.

Planta 3-10 cm. alta dense caespitosa radice fusiformi multicipite praedita. Caules numerosi caespitem densum formantes multo intertexti pro maxima parte subhypogaei; caules steriles breves bene foliati; caules floriferi scapiformes aphylli pilis furcatis albidis dense obsiti. Folia eis *D. involucreatae* subsimilia, 4-10 cm. longa, 3-4 mm. lata, oblanceolata vel plus minusve elliptica, obtusa, membranacea, utrinque et ad margines pilis furcatis plus minusve conspersa. Inflorescentia corymboso-racemosa 2-10-flora, floribus inferioribus saepe subremotis, pedicellis 2-7 mm. longis pilosulis. Sepala 3-4 mm. longa, cymbiformia, obtusa, viridia, margine submembranacea, dorso pilis furcatis conspersa. Petala circ. 7 mm. longa, anguste obovata, breviter emarginata, laete flava. Ovarium oblongum pilis setaceis dense indutum stylo longiusculo coronatum. Fructus vix maturus circ. 4.5 mm. longus pilis persistentibus.

"China:—N.W. Yunnan. 1913." F. K. Ward. No. 1023A.

"Mekong-Salween divide, Yunnan, in open stony pasture

and on boulders. Lat. 28° 12' N. Alt. 13,000 ft. Matted plant of 3-4 inches. Flowers bright yellow. July 1917." G. Forrest. No. 14,298.

"On the Bei-ma Shan, Yunnan, on open stony pasture and cliffs. Lat. 28° 12' N. Alt. 14,000 ft. Matted plant of 1-2 inches. Flowers bright yellow. July 1917." G. Forrest. No. 14,495.

A densely caespitose plant with a wealth of bright yellow flowers; it is closely allied to the preceding species and to *A. alpina*, Linn.

***Draba lichiangensis*, W. W. Sm. Sp. nov.**

Species affinis *D. tibeticae*, Hook. f. et Thoms. a qua foliis multo minus tomentosis et fructibus ovoideis glabris recedit.

Planta pusilla caespitosa 2-5 cm. alta; pars glebae inferior e caulibus vetustis intertextis composita petiolis emarcidis nigricantibusque dense induta, unde rosulae foliorum radicalium oriuntur. Folia radicalia 4-7 mm. longa, 1-2 mm. lata, oblanceolata vel spatulata, apice obtusa vel subacuta, basi in petiolum vix discretum attenuata, integra vel paucidentata, membranacea, utrinque densiuscule stellato-incana; costa media obscura. Scapi breves aphylli vel ad basim inflorescentiae bracteis foliaceis 1-2 instructi. Inflorescentiae 5-10-florae floribus primo subcapitato-aggregatis. Sepala oblonga circ. 1.5 mm. longa, atroviridia, pilis stellatis et furcatis plus minusve conspersa. Petala oblanceolata vel obovata, sepalis fere duplo longiora, alba. Ovarium ovoideum glabrum stylo brevi instructum. Fructus maturus ovoideus circ. 3 mm. longus, 2.5 mm. latus.

Draba tibetica, Diels nec Hook. et Thoms. in Notes Roy. Bot. Gard., vii (1912), 104.

"China:—Yunnan, western flank of the Lichiang Range. Lat. 27° 20' N. Alt. 13,000 ft. Plant of 1-2 inches. Flowers white. Crevices of limestone cliffs. May 1910." G. Forrest. No. 5698.

"Eastern flank of the Lichiang Range. Lat. 27° 30' N. Alt. 14,000-15,000 ft. Plant of 1-2 inches. Flowers white. Crevices of limestone boulders. July 1910." G. Forrest. No. 6099. Also No. 2177.

"Mekong-Salween divide. Lat. 28° 12' N. Alt. 13,000 ft. Tufted plant of 1-2 inches. Flowers white. On stony moist meadows. July 1917." G. Forrest. No. 14,282.

***Draba modesta*, W. W. Sm. Sp. nov.**

Species ex affinitate *D. rupestris*, R. Br. a qua inflorescentia congesta foliis caulinis superioribus involucrata, ovario glabro inter alia differt.

Planta nana in specimine nostro circ. 3 cm. alta, radice fusiformi praedita, ad collum foliis petiolisque emarcidis induta. Caules 2-3 cm. alti, plures, debiles, suberecti, in parte superiore 2-3-foliati, infra nudi, plus minusve dense albido-patenti-pilosi. Folia radicalia rosulata cum petiolo vix discreto alato ad 2.5 cm. longa, circ. 5 mm. lata, anguste oblanceolata, vel subspathulata, apice acutata, basi cuneata, integra vel dentibus 1-2 instructa, membranacea, pilis simplicibus et bifurcatis utrinque sparsiuscule et longiuscule pilosa; costa media conspicua straminea; folia caulina radicalibus subsimilia sed sessilia, paulo breviora, vulgo 2-3, inflorescentiam congestam superantia et quasi-involucrancia. Inflorescentia 5-10-flora. Sepala circ. 1.5 mm. longa, ovalia, obtusa, glabra vel pilis perpaucis instructa. Petala 2-2.5 mm. longa, anguste obovata vel oblanceolata, alba. Ovarium glabrum stylo brevi instructum. Fructus immaturus oblongus.

"China:—N.W. Yunnan at A-tun-tsu, on rocks and screes at 15,000 ft. August 1913." F. K. Ward. Nos. 943, 737.

***Draba oreodoxa*, W. W. Sm. Sp. nov.**

Species inter congeneres occidentali-chinenses distinctissima; flores *D. surculosam*, Franch. et *D. yunnanensem*, Franch. in mentem vocant sed plantae habitus omnino diversus est.

Planta circ. 5-10 cm. alta caespitosa radice fusiformi praedita. Caules numerosi (ad 12 in nostra scheda) flexiles basi subdecumbentes, supra erectiusculi, pilis simplicibus et furcatis et stellatis bene induti. Folia radicalia dense rosulata 1 cm. longa vel paulo ultra, circ. 4 mm. lata, oblanceolata vel spathulata vel oblonga, apice rotundata vel obtusa, basi in petiolum indistinctum attenuata, integra vel obscure denticulata, tenuiter papyracea, undique pilis furcatis stellatisque plus minusve instructi; costa media obscura; folia caulina plerumque 3-5, ovata vel ovato-lanceolata, sessilia, basi rotundata, vulgo distincte denticulata, quoad magnitudinem et indumentum radicalibus similia. Inflorescentiae 10-15-florae, corymboso-racemosae, rhachi pedicellis pilosis; flores infimi foliis superioribus 1-2 bracteati; pedicelli floribus paulo longiores. Flores pro planta magni aureo-flavi. Sepala ovata vel ovalia circ. 2.5 mm. longa, medio viridia, marginibus pallido-flava, extra pilis furcatis conspersa. Petala 6-7 mm. longa, late obovata, emarginata, glabra. Fructus immaturus ovoideus circ. 2.5 mm. longus, 2 mm. latus, glaber, stylo 1 mm. longo terminatus.

"China:—Yunnan, on the eastern flank of the Lichiang Range. Lat. 27° 30' N. Alt. 13,000 ft. Plant of 2-4 inches. Flowers golden yellow. On rocks and stony pasture. July 1910." G. Forrest. No. 6141.

Draba Wardii, W. W. Sm. Sp. nov.

Species valde affinis *D. gracillimae*, Hook. f. et Thoms. a qua caulibus folisque haud stellato-incanis, sepalis glabris inter alia differt.

Planta pusilla in scheda nostra circ. 8 cm. alta, radice fusiformi praedita. Caules plures gracillimi, flexuosi, paucifoliati, pilis simplicibus et furcatis subsparsim instructi. Folia radicalia rosulata circ. 1 cm. longa, circ. 2.5 mm. lata, oblanceolata vel spathulata, apice obtusissima, basi in petiolum vix discretum attenuata, integra, membranacea, utrinque et ad margines pilis paucis simplicibus et furcatis conspersa; costa media subconspicua; folia caulina circ. 6 mm. longa ad 4 mm. lata, sessilia, ovata vel ovalia, integra vel dentibus duobus praedita, ciliata, ceterum subglabra. Inflorescentiae circ. 4-florae, laxe racemosae, floribus inferioribus saepe bracteatis. Sepala circ. 1.5 mm. longa, ovalia, glabra. Petala sepalis fere duplo longiora, obovata, flava. Ovarium glabrum. Fructus deest.

"E. Tibet:—At Ka-gwr-pw, near the Yunnan frontier, in Alpine grassland. Alt. 15,000 ft. July 1913." F. K. Ward. No. 849.

This species is very closely allied to the Himalayan species described by Hooker as *D. gracillima*. The leaves of the latter plant are hoary with stellate hairs.

Gaultheria prostrata, W. W. Sm. Sp. nov.

Species affinis *G. trichophyllae*, Royle a qua foliis ellipticis, floribus 1-3-natis ramulos terminantibus, antheris biaristatis, ovario pubescente divergit.

Frutex prostratus habitu *G. trichophyllae*, Royle, ramis 10-20 cm. longis, junioribus pubescentibus, senioribus tarde glabrescentibus cinerascens. Folia petiolo circ. 1 mm. longo glabro praedita; lamina 10-12 mm. longa, 6-8 mm. lata, elliptica, apice rotundata vel plus minusve obtusa, basi late cuneata, margine crenulata, crenis nonnunquam minute apiculatis, papyracea, glabra, supra laete viridis, infra pallidior punctis nigris saepe conspersa, reticulo venarum utrinque conspicuo supra immerso. Flores 1-3 ad apicem ramorum plerumque dispositi, racemum brevissimum saepe formantes; axis pubescens bracteis pluribus ovatis 2-3 mm. longis viridibus margine roseis ornata; pedicelli circ. 1 mm. longi. Calycis dentes ovati circ. 2 mm. longi acutiusculi. Corolla late campanulata, alba, circ. 4 mm. longa, lobis 1 mm. longis ovato-triangularibus. Stamina cum aristis circ. 2 mm. longa, filamentis complanatis minutissime puberulis, antheris biaristatis supra vix productis. Ovarium depressoglobosum minute pubescens stylo cylindrico fere 2 mm. longo. Fructus deest.

"China :—Mekong-Salween divide, Yunnan, in open moist pasture and on boulders. Lat. $28^{\circ} 12'$ N. Alt. 14,000 ft. Prostrate shrub of 4-8 inches. Flowers white. July 1917." G. Forrest. No. 14,371.

Gaultheria tetramera, W. W. Sm. Sp. nov.

Species ex affinitate *G. fragrantissimae*, Wall. et *G. Veitchianae*, Craib; habitu plerumque humiliore, foliis minoribus, floribus tetrameris minoribus inter alia notata.

Fruticulus 15-60 cm. altus, rarius ad 1.5 m. Caules e caudice crasso saepe 2-6, erecti vel basi decumbentes, graciles, hornotini setis longis brunneis dense obsiti, annotini tarde glabrescentes, vetustiores saepe moribundi. Folia petiolo 2-3 mm. longo primum parce setosulo praedita; lamina 3-5.5 cm. longa, 1-2.5 cm. lata, late elliptica vel elliptico-lanceolata vel oblanceolata, apice rotundata vel plus minusve acutata, apiculata, basi late cuneata, margine serrulata, papyracea, supra opaco-viridis glabra, infra pallidior pedibus setarum nigris notata; nervi 3-4 paria subtus eminentes. Inflorescentiae numerosae axillares, saepe ex axillis infimis ortae, plerumque 5-10-florae, foliis breviores; rhachis 1-2 cm. longa, dense pubescens fere ad basim florifera; bractae ovatae acutae 1.5 mm. longae ciliolatae; bracteolae sub calycem positaе, 1-1.5 mm. longae, ovatae acuminatae minute pilosulae et ciliolatae; pedicelli 1-2 mm. longi pubescentes. Calyx circ. 3 mm. longus; lobi ovati acuti minute ciliolati. Corolla ovoideo-tubulosa vix 5 mm. longa, viridi-alba, ore angusto, lobis quatuor ovatis minimis. Stamina in specimenibus nostris multo reducta antheris deficientibus. Ovarium superum quadriloculare dense et minute pilosulum stylo cylindrico 2 mm. longo pilosulo. Fructus globosus 5-6 mm. diametro laete caeruleus, basi bracteolis persistentibus praeditus, apice lobis calycis succulentis coronatus; semina numerosa angulata.

"China :—Hills to the east of Teng-yueh, Yunnan, in thickets in side valleys. Lat. 25° N. Alt. 6000 ft. Undershrub of 6-12 inches. Flowers greenish-white, fragrant. May 1912." G. Forrest. No. 7702.

"Hills to the east of Teng-yueh in shady situations amongst rocks. Lat. 25° N. Alt. 6500 ft. Dwarf undershrub of 6-12 inches. Flowers white? In fruit. July 1912." G. Forrest. No. 8786.

"Hills to the east of Teng-yueh, in open situations amongst scrub. Lat. 25° N. Alt. 7000-8000 ft. Undershrub of 1-2 ft. In fruit; fruits bright blue. Nov. 1912." G. Forrest. No. 9331.

"Shweli-Salween divide, Yunnan, on margins of thickets and in cane brakes. Lat. $25^{\circ} 20'$ N. Alt. 11,000 ft. Under-

shrub of 2 ft. In fruit; fruits purple-blue. Oct. 1917." G. Forrest. No. 15,986.

"S.E. Tibet:—On Ka-gwr-pw, Mekong-Salween divide, province of Tsarong, in thickets and rhododendron scrub. Lat. 28° 35' N. Alt. 13,000 ft. Shrub of 6–9 inches. In fruit; fruits deep blue. Sept. 1917." G. Forrest. No. 14,882.

The following is a larger shrub, but agrees in the details of the flower showing the same tetramery and reduced stamens:—

"China:—Divide between the Shweli and Teng-yueh valleys, in open situations amongst scrub. Lat. 25° N. Alt. 7000 ft. Shrub of 3–5 ft. Flowers white? In fruit. Aug. 1912." G. Forrest. No. 8757.

Hydrangea subferruginea, W. W. Sm. Sp. nov.

Species affinis *H. yunnanensi*, Rehder; ramulis molliter ferrugineo-hirsutis, foliis grosse denticulatis ad costam dense ferrugineo-hirsutis, petalis tarde deciduis inter alia bene notata.

Frutex 2.4–3.6 m. altus ramulis hornotinis molliter ferrugineo-hirsutis, pilis plus minusve patentibus. Folia petiolo 1–1.5 cm. longo dense patenti-ferrugineo-hirsuto praedita; lamina 12–14 cm. longa, 4–6 cm. lata, oblonga vel lanceolato-oblonga vel oblanceolato-oblonga, apice caudato-acuminata, basi cuneata, margine subirregulariter grossi-denticulata, membranacea, supra opaco-viridis, setulis adpressis conspersa ad costam dense strigilloso-villosa, subtus pallidior undique setulis densiuscule adpersa ad costam dense ferrugineo-hirsuta, nervis utrinsecus 10–12. Cyma fere plana radiis 5–7 oppositis dense ferrugineo-hirsutulis. Flores steriles circ. 4 cm. diametro sepalis 3–4 late ovatis albis paucidentatis; flores fertiles albidii (?) pedicellis 2–3 mm. longis suffulti. Calycis dentes lanceolati sub-acuminati circ. 2 mm. longi. Petala circ. 4 mm. longa lanceolata, tarde decidua, sub maturitatem antherarum persistentia et plus minusve reflexa. Stamina longiora petalis paulo breviora. Ovarium semisuperum stylis 3. Fructus deest.

"Upper Burma:—Htawgaw, valley of Naung-Chaung, Lashi country. In jungle in damp shady gulleys. Small scarcely branched shrub of 8–12 ft., of loose habit. Flowers white. May 1914." F. K. Ward. No. 1542.

Justicia xantholeuca, W. W. Sm. Sp. nov.

Species sectionis *Calophanoidis* et affinis *J. salicifoliae*, T. Anders. et *J. Neesianae*, Wall. a quibus habitu et bracteis haud spathulatis inter alia divergit; ab *J. flava*, Kurz foliis multo minoribus recedit.

Fruticulus ex collectore circ. 30 cm. altus. Caules erecti

vel suberecti, graciles, subteretes, ramosi ramulis subpatentibus, primo minute et subscabride pilosuli, deinde minute lineolati. Folia petiolo 2-5 mm. longo pilosulo suffulta; lamina 2-3 cm. longa, 7-10 mm. lata, lanceolata, apice plus minusve acuminata, basi in petiolum cuneata, integra, papyracea, utrinque ad costam minute et adpresse pilosula, cetera sparsim pilosula vel glabrescens. Flores in axillis fere omnibus orientes 4-5 fasciculati; bracteae 5 mm. longae vel ultra, anguste oblanceolatae vel lanceolatae, ut folia indutae; bracteolae subulatae vel anguste lanceolatae vel ovatae et minutae; pedicelli brevissimi. Calyx pallide viridis circ. 5 mm. longus in lobos lineari-lanceolatos acuminatos ad costulam albo-pilosos fere ad imum fissus. Corolla circ. 8 mm. longa, ex collectore alba, in sicco flavescens, extra sparsim pilosula; structura corollae et genitalium cum ea *J. yunnanensis* congruit. Fructus glaber seminibus quatuor tuberculato-verrucosis stramineis.

"China:—Yunnan, pâtures des collines à Ko-koui. Alt. 1800 m.; arbrisseau ou plante sous-ligneuse; fl. blanches; September." E. E. Maire. No. 343 (1913) in Herb. Edin.

***Justicia xerobatica*, W. W. Sm. Sp. nov.**

Species sectionis *Calophanoidis* affinis *J. salicifoliae*, T. Anders. ejusque sociis a quibus habitu prostrato et radicante inter alia distinguitur.

Planta prostrata basi lignosa caulibus ad 30 cm. longis gracilibus flexuosis ad nodos saepe radicanibus apice ascendentibus minute albido-crispato-pilosulis. Folia petiolo 2-3 mm. longo pilosulo praedita; lamina 1-2 cm. longa, 5-8 mm. lata, suborbicularis vel late obovata vel rarius lanceolata, apice rotundata vel obtusa, basi cuneata, integra, tenuiter papyracea, utrinque praesertim ad nervos minute pilosula. Flores vulgo in axillis superioribus orientes 1-3 fasciculati; bracteae 3-4 mm. longae late obovatae vel suborbiculares foliaceae, ut folia indutae; bracteolae minutae ovatae vel subulato-lanceolatae; pedicelli vix nulli. Calyx viridis circ. 5 mm. longus in lobos lineari-lanceolatos acuminatos ad costulam pilosos ad marginem scariosos fere ad imum fissus. Corolla ex collectore alba, in sicco flavescens, circ. 9 mm. longa, extra sparsim pilosula; corollae structura et genitalia cum eis *J. yunnanensis* congruunt. Fructus maturus abest.

"China:—Yunnan, tertres-coteaux calcaires à La-kou. Alt. 2400 m.; plante vivace, rampante, sous-ligneuse; fl. blanches; October." E. E. Maire. No. 382 (1914) in Herb. Edin.

Justicia xerophila, W. W. Sm. Sp. nov.

Species sectionis *Calophanoidis* affinis speciei praecedenti a qua habitu gracillimo suberecto, floribus minoribus, calyce diverso recedit.

Planta suberecta basi sublignosa caulibus circ. 10 cm. longis gracillimis flexuosis minute fulvido-pilosulis. Folia petiolo 1-3 mm. longo pilosulo instructa; lamina vulgo 1 cm. longa, circ. 4 mm. lata, lanceolata vel oblanceolata, apice acuta vel obtusiuscula, haud acuminata, basi cuneata, integra, tenuiter papyracea, utrinque ad nervos minute pilosula, ceterum sparsissime pilosula. Flores in axillis fere omnibus orientes vulgo 1-2-nati; bracteae 3-5 mm. longae late obovatae vel suborbiculares foliaceae, ut folia indutae; bracteolae circ. 2 mm. longae, sublineares. Calyx viridis circ. 5 mm. longus in lobos sublineares acuminatos sparsim pilosulos vel subglabros fere ad imum fissus. Corolla ex collectore alba, in sicco flavescens, 7-8 mm. longa, extra fere glabra; corollae structura et genitalia cum eis *J. yunnanensis* congruunt. Fructus glaber seminibus quatuor tuberculato-rugosis.

"China:—Yunnan, tertres arides—pied des montagnes calcaires à La-kou. Alt. 2400 m.; plante vivace, sous-ligneuse, naine gazonnante; fl. blanches. July." E. E. Maire. No. 196 (1913) in Herb. Edin.

Justicia xylopoda, W. W. Sm. Sp. nov.

Species affinis *J. yunnanensi*, W. W. Sm. infra descriptae a qua basi perlignosa, habitu nano ramosissimo, foliis minoribus discriminatur.

Planta nana fruticosa 7-30 cm. alta, caudice crasso lignoso, basi ramosissima; caules plus minusve decumbentes, apice ascendentes, minute fulvido-vel albido-pilosuli. Folia petiolo 2-3 mm. longo pilosulo instructa; lamina 10-13 mm. longa, 4-5 mm. lata, lanceolata vel subelliptica, apice obtusa, basi cuneata, integra, tenuiter papyracea, utrinque minute et sparsim pilosula, ad nervos vix densius. Flores vulgo in axillis superioribus orientes 1-3-fasciculati; bracteae 3-5 mm. longae obovatae vel petiolo parvo suborbiculares, foliaceae, ut folia indutae; bracteolae plerumque minutae ovatae; pedicelli brevissimi. Calyx viridis circ. 5 mm. longus in lobos lineari-lanceolatos acuminatos ad costulam dense pilosulos marginibus subscariosos fere ad imum fissus. Corolla ex collectore pallido-flava vel viridi-flava, in sicco intus rubido-maculata, circ. 1 cm. longa, in flore aperto glabra; corollae structura et genitalia cum eis *J. yunnanensis* congruunt. Fructus maturus deest.

"China:—Yunnan, Yangtze valley at Ta-Ku. Lat. 27° 30'

N. Alt. 8000 ft. Dwarf shrub of 9-12 inches. Flowers pale yellow. Dry stony pasture. Aug. 1914." G. Forrest. No. 13,069.

"Yunnan. Mountains in the N.E. of the Yangtze bend. Lat. 27° 45' N. Alt. 10,000 ft. Dwarf shrubby plant of 3-6 inches. Flowers dull greenish yellow. Open stony pasture. Sept. 1913." G. Forrest. No. 11,004.

Justicia yunnanensis, W. W. Sm. Sp. nov.

Species sectionis *Calophanoidis* et affinis *J. Neesianae*, Wall. et *J. Championi*, Benth. ; ab *J. quadrifaria*, Wall. sociisque ejus foliis multo minoribus differt ; ab *J. Neesiana*, Wall. caule foliisque pubescentibus inter alia diversa est.

Fruticulus ad 45 cm. altus. Caules basi adscendentes ibique nudi deinde suberecti, nisi ad basem simplices, minute albidocrispato-pilosuli. Folia petiolo 2-5 mm. longo pilosulo suffulta ; lamina circ. 2.5 cm. longa, circ. 1 cm. lata, lanceolata vel oblanceolata, apice obtusiuscula, basi in petiolum anguste cuneata, integra, papyracea, utrinque pilosula. Flores in axillis fere omnibus orientes 4-5-fasciculati ; bracteae 5-10 mm. longae, orbiculari-spathulatae vel obovatae, ut folia indutae, bracteolae lineares vel anguste oblanceolatae ; pedicelli brevissimi. Calyx pallide viridis circ. 5 mm. longus in lobos linearilanceolatos acuminatos ad costulam albo-pilosos fere ad imum fissus. Corolla circ. 8 mm. longa pallido-flava extra sparsim pilosula ; corollae forma et lobi et stamina et ovarium cum eis sociorum citatorum congruunt. Fructus glaber ; semina 4 verrucosa.

"China :—Yunnan, in the Yung-pe mountains. Lat. 26° 45' N. Alt. 10,000 ft. Plant of 9-18 inches. Flowers pale yellow. Dry pasture. Sept. 1913." G. Forrest. No. 11,051.

The five species of *Justicia* described here are all closely allied and form a series somewhat similar to that of *Justicia Neesiana*, Wall. and its allies in Hooker's *Flora Brit. Ind.*, iv (1885), 531. The species are distinguished more by habit and foliage than by the characters of the flower. The size and structure of the corolla, stamens, ovary, and seeds are very much the same in all the species.

Lagotis alutacea, W. W. Sm. Sp. nov.

Species affinis *L. crassifoliae*, Prain et *L. yunnanensi*, W. W. Sm. ; foliis subcoriaceis saepe subintegris, inflorescentiis anguste spicatis, bracteis calycem longe superantibus, calyce corollae tubum subaequante, filamentis staminum antheras vix aequantibus, stigmatibus vix exserto bene notata.

Planta ad 10 cm. alta glabra. Rhizoma elongatum medio-criter crassum, apice vaginis persistentibus destitutum, radices multas cylindricas emittens. Folia petiolo alato 2-5 cm. longo praedita; lamina 4.5-5.5 cm. longa, 2.5-3.5 cm. lata, late elliptica vel suborbicularis, apice rotundata, basi rotundata vel late cuneata, margine subintegra vel irregulariter (et saepe obscure) dentata, in sicco subcoriacea; folia caulina plerumque duo sub inflorescentiam posita, basilaribus multo minora, ovata vel ovato-lanceolata, sessilia. Scapus folia plerumque paulo superans; inflorescentia circ. 4 cm. longa spicam angustam densifloram formans; bracteae circ. 8 mm. longae, e basi angusta ovatae vel ovato-lanceolatae, obtusae, alutaceae, lurido-virides. Calyx circ. 5 mm. longus, spathaceus, apice bilobus, nervis in lobos excurrentibus. Corollae albae cyaneotinctae tubus circ. 5 mm. longus, lobi circ. 4 mm. longi, superior lanceolatus integer, inferiores 2 vel rarius 3 lineares. Antherae filamentis paululo longiores. Stigma vix exsertum. Fructus deest.

"China:—On Ka-gwr-pw, Mekong-Salween divide, Yunnan, in moist open stony pasture. Lat. 28° 30' N. Alt. 12,000 ft. Plant of 3-4 inches. Flowers white, tinged blue. Aug. 1917." G. Forrest. No. 14,670.

Var. *foliosa*, W. W. Sm.

A typo differt habitu altiore, foliis ellipticis vel ovatis, foliis caulinis conspicuo evolutis, inflorescentiis ad 8 cm. longis, bracteis calycem subaequantibus. An species distincta?

"China:—N.W. flank of the Lichiang Range, Yunnan, on stony moist pasture. Lat. 27° 25' N. Alt. 12,000 ft. Plant of 6-9 inches. Flowers white flushed rose, bracts blue. July 1914." G. Forrest. No. 12,772.

Lagotis integra, W. W. Sm. Sp. nov.

Species habitu *L. glaucae*, Gaertn. var. *Pallasii*, Trautv. sed foliis crassioribus integris, calyce gamophyllo bracteis superante, tubo corollae multo curvato calyce brevior, stylo omnino incluso inter alia differt.

Planta 7-15 cm. alta glabra. Rhizoma elongatum crassum apice nudum radicibus cylindricis bene praeditum. Folia radicalia plerumque 4-5, petiolo 5-9 cm. longo late alato basi vaginato suffulta; lamina 5-7 cm. longa, 2.5-3.5 cm. lata, elliptica vel obovato-elliptica, apice rotundata vel rarius acutata, basi late cuneata, margine integra, in sicco carnosula; caulina 3-4, multo minora, lanceolata, acuta vel acutata, sessilia vel (inferiora) breviter petiolata. Scapus folia longe superans;

inflorescentia spiciformis circ. 6 cm. longa, 1.5 cm. lata ; bracteae herbaceae, infimis majoribus exceptis circ. 4 mm. longae, calyce breviores, lanceolatae, plus minusve acutae. Calyx 6-7 mm. longus, membranaceus, spathaceus, apice breviter fissus, lobis obtusis nervis duobus pererratus, minute erosulus. Corollae cyanae tubus calyce brevior curvatus et lateraliter extrusus, lobi circ. 3 mm. longi tubo breviores, superior ovato-lanceolatus vulgo integer, inferiores duo lanceolati. Stamina filamentis brevissimis praedita. Stylus ad medium tubum corollinum attingens. Fructus deest.

"China :—On the Bei-ma Shan, Yunnan, on stony pasture. Lat. 28° 12' N. Alt. 14,000 ft. Plant of 3-6 inches. Flowers deep blue. July 1917." G. Forrest. No. 14,422.

Lagotis praecox, W. W. Sm. Sp. nov.

Species nana foliis sub anthesi haud recte evolutis, scapis aphyllis, bracteis parvis corollam staminaque haud celantibus, calyce parvo alte fisso medium tubi corollini paulo excedente, staminibus corollam superantibus inter alia notata ; *L. ramalana*, Batal. valde affinis sepalis duobus acutis ex descriptione differt.

Planta 5-12 cm. alta, glabra. Rhizoma elongatum sat crassum apice squamis persistentibus destitutum radices multas carnosulas emittens. Folia radicalia 2-3, petiolo ad 6 cm. longo alato praedita ; lamina (haud bene evoluta) 2-2.5 cm. longa, 1.5-2 cm. lata, ovata, apice rotundata vel obtusa, basi subrotundata vel cordatula, margine pro magnitudine alte crenata, in sicco papyracea. Scapus sub anthesi folia aequans vel paulo superans, aphyllus, bracteis infimis foliaceis flores gerentibus ; inflorescentia oblongo-globosa circ. 2 cm. longa, 1.5 cm. lata ; bracteae herbaceae, inferiores circ. 8 mm. longae, supra cito decrescentes, corollis (nisi infimis) staminibusque longe exsertis, late obovatae vel subspathulatae apice rotundatae, rarius alte emarginatae. Calyx circ. 3 mm. longus, tenuissime membranaceus, spathaceus, ad medium vel ad tres partes divisus, lobis oblongis obtusis minute fimbriatis. Corollae atro-cyanae circ. 6 mm. longae tubus limbum paulo superans ; lobus superior oblongus integer vel breviter emarginatus, inferiores vulgo duo elliptici obtusi. Stamina sub anthesi conspicuo exserta, filamentis antheras superantibus, antheris lobos corollinos excedentibus. Stylus paulo exsertus. Fructus deest.

"China :—A-tun-tsu, N.W. Yunnan ; 14,000 ft. May 1911. An Alpine growing on bare gravel and shale screes. It will be noted that the leaves are red and but ill developed, while the flowers are in full bloom. The immense root system is characteristic of these barren-scrub plants, partly no doubt on account of the porous nature of the soil and the rapid evaporation from

its surface, partly on account of the frequency with which the soil slides down, especially during heavy rains." F. K. Ward. No. 140.

"China :—Mekong-Salween divide, Yunnan, in open moist pasture. Lat. $28^{\circ} 20'$ N. Alt. 12,000 ft. Plant of 2-5 inches. Flowers deep blue. June 1917." G. Forrest. No. 14,076.

The following probably represents the fruiting stage of *L. praecox*, and a description is appended :—

"China :—On the Bei-ma Shan, Yunnan, in boggy pasture by streams. Lat. $28^{\circ} 12'$ N. Alt. 14,000 ft. Plant of 3-6 inches. Flowers blue. July 1917." G. Forrest. No. 14,404.

Planta ad 15 cm. alta. Folia petiolo 4-7 cm. longo praedita ; lamina 5-7 cm. longa, 4-7 cm. lata, reniformis, apice rotundata, basi cordata vel rotundata, margine crenis sat magnis notata, subcoriacea, infra in sicco purpurascens. Scapus folia subaequans aphyllus. Bractae (auctae in fructu ?) circ. 1.5 cm. longae, obovatae vel subellipticae, obtusae, subcoriaceae, dense imbricatae florum reliquias celantes. Calyx (ex reliquiis) spathaceus ad tertiam partem bractae pertinens. Fructus ellipsoideus circ. 7 mm. longus, circ. 3 mm. latus, ad maturitatem uno loculo 1-seminifero, altero subobsoleto.

Lagotis Wardii, W. W. Sm. Sp. nov.

Species affinis *L. yunnanensi*, W. W. Sm. a qua foliis latoribus et tenuioribus, inflorescentiis subglobosis, calyce bracteis tuboque corollino brevior recedit.

Planta circ. 15 cm. alta, perennis, glabra. Rhizoma elongatum mediocriter crassum apice nudum, radices multas cylindricas emittens. Folia radicalia petiolo 3-7 cm. longo suffulta ; lamina majorum circ. 6 cm. longa, 4-6 cm. lata, suborbicularis vel ovato-oblonga, apice plerumque rotundata, basi truncato-rotundata vel late cuneata, margine crenis latis paucis notata, in sicco tenuiter papyracea, nervis subdistinctis. Scapus folia aequans vel paululo superans, prope inflorescentiam foliis 1-3 breviter petiolatis vel sessilibus in bracteas transeuntibus praeditus. Inflorescentia subglobosa 2.5-3 cm. longa, 2.5-3 cm. lata ; bractae vulgo circ. 1 cm. longae, anguste lanceolatae, apice acutatae, opaco-virides, margine haud albescentes. Calyx sub anthesi bractea multo brevior, circ. 6 mm. longus, spathaceus, nervis in dentes 2 breves excurrentibus, margine saepe minute fimbriatus. Corollae (albae ?) tubus calycem paulo superans, circ. 7 mm. longus, limbus circ. 8 mm. longus, lobo inferiore in lobulos vulgo 2 lineares diviso, superiore lanceolato integro. Antherae subsessiles. Stylus ultra medium tubi corollini vix pertinet, stigmate manifeste bilobato. Fructus deest.

" S.E. Tibet :—At Doker-la, 13,000–14,000 ft. Aug. 1913." F. K. Ward. No. 1043.

Lagotis yunnanensis, W. W. Sm. Sp. nov.

Species ex affinitate *L. glaucae*, Gaertn. a qua rhizomate apice nudo, floribus albis vel roseis, stylo multo brevior tubi corollini medium subaequante inter alia recedit; ab *L. crassifolia*, Prain valde affini foliis apice rotundatis vix carnosius, bracteis vix acutis, lobis corollae tubum fere aequante differt.

Planta circ. 15 cm. alta, ex collectore nonnunquam ad 30 cm., perennis, glabra. Rhizoma elongatum crassum apice nudum radices multas cylindricas carnosulas emittens. Folia radicalia eis *L. glaucae* subsimilia petiolo 6–10 cm. longo suffulta; lamina 3.5–7 cm. longa, 3–5 cm. lata, ovata vel plus minusve elliptica, apice rotundata, basi in petiolum cuneata et decurrens, margine crenis latis notata, in sicco papyracea. Scapus folia superans basi nudus, prope inflorescentiam foliis sessilibus 2–4 in bracteas subtranseuntibus praeditus. Inflorescentia spiciformis circ. 6 cm. longa, 2 cm. lata; bracteae vulgo 7–8 mm. longae, ovatae vel lanceolato-ovatae, apice acutatae sed vix acutae, lurido-virides, margine saepe albido-pergamentaceae. Calyx bracteam sub anthesi paululo excedens, 8–9 mm. longus, spathaceus, nervis in dentes 1–3 excurrentibus, margine saepe minute fimbriatus, albidus. Corollae albae vel roseae tubus calycem fere aequans, limbus 6–7 mm. longus, lobo inferiore in lobulos 2–4 lineares diviso, superiore lanceolato integro vel bilobo. Antherae subsessiles. Stylus ultra medium tubi corollini vix pertinens, stigmatibus subcapitato. Fructus deest.

" China :—Wa-di-i Shan, Yunnan, on open stony pasture. Lat. 27° 40' N. Alt. 12,000 ft. Plant of 4–6 inches. Flowers white. Aug. 1917." G. Forrest. No. 15,421.

" Mountains in the N.E. of the Yangtze bend, Yunnan, on open stony pasture. Lat. 27° 45' N. Alt. 11,000 ft. Plant of 9–12 inches. Flowers rose. July 1913." G. Forrest. No. 10,373.

Parrya linearifolia, W. W. Sm. Sp. nov.

Species affinis *P. eurycarpae*, Maxim. et *P. platycarpae*, Hook. f. et Thoms. a quibus foliis linearibus, calyce fructuque dense albido-piloso inter alia differt.

Planta dense caespitosa fere acaulis. Radix crassa praelonga verticalis multiceps. Caulis brevissimus basi vaginis foliorum vetustorum eorumque vestigiis dense vestitus. Folia dense rosulata, ad 6 cm. longa, 2–4 mm. lata, linearia vel angustissime spathulata, apice obtusiuscula, ad basim vix angustata, submembranacea, pilis albidis longiusculis utrinque plus minusve

dense induta. Pedunculi omnes radicales 1-flori, fructiferi ad 5 cm. alti, dense albo-pilosi. Sepala circ. 1 cm. longa, oblonga, obtusa, densissime et longiuscule albo-pilosa, scarioso-marginata. Petala circ. 2 cm. longa rosea, ungue calycem aequante, lamina obovata breviter emarginata vel subintegra minute erosula. Stigma ovario aequilatum. Siliqua 4.5–5.5 cm. longa, 1–1.5 cm. lata, ovato-oblonga, marginibus incrassata, undique plus minusve albo-pilosa; stigma breviter bilobulum; semina matura pauca 5–6 late ovalia, multo compressa, circ. 5 mm. longa.

"China:—At A-tun-tsu, N.W. Yunnan. Alt. 15,000 ft. July 1911." F. K. Ward. No. 55.

"China:—Yunnan, in open situations on boulders and cliffs on the Bei-ma-Shan, Mekong-Yangtze divide. Lat. 28° 20' N. Alt. 14,500 ft. Plant of 3–4 inches. In fruit. Aug. 1914." G. Forrest. No. 13,235.

"Yunnan, on open stony hillsides on the Bei-ma Shan. Lat. 28° 12' N. Alt. 14,000 ft. Tufted plant of 1–2 inches. Flowers soft rose, fragrant. June 1917." G. Forrest. No. 13,980.

"On the Bei-ma Shan. In immature fruit. July 1917." G. Forrest. No. 14,435.

A species well distinguished by the hairy linear leaves and the hairy ovate-oblong siliqua.

Silene (Melandryum) bilingua, W. W. Sm. Sp. nov.

Species affinis *S. rubicundae*, Franch. et *S. trachyphyllae*, Franch.; foliis linearibus, petalorum ungue in auriculas latas erosulas flabellatim dilatato, lamina in lobos duos praelongos lineares producta inter alia signa bene notata.

Planta elata ad 60 cm. alta, perennis, satis bene foliosa. Radices numerosae fusiformi-incrassatae, ad caudicem squamis indutae. Caules 1–2, erecti, graciles, ramis subpatentibus ramosi, infra minute et sparsius pilosuli, supra densiuscule glanduloso-pilosuli. Folia basalia non visa; caulina breviter connata, in petiolum indistinctum attenuata, 2–3 cm. longa, 1–1.5 mm. lata, linearia, apice acuta haud apiculata, membranacea, ad basim minute ciliata, ceteroquin glabra vel subglabra. Inflorescentiae terminales laxae ad 12 cm. longae ad 10 cm. latae, dichotome cymosae, 7–20-florae; bracteae circ. 1 cm. longae, lineares, ultimae minutae subulatae, omnes glanduloso-pilosulae; pedicelli inferiores calyce paulo longiores glandulosi. Calyx 10–12 mm. longus, tubuloso-campanulatus, basi paulo constrictus, in sicco purpurascens, ad sextam partem in lobos triangulares obtusiusculos divisus, extra ad nervos plus minusve glanduloso-pilosulus. Petala circ. 1.5 cm. longa, calycem paulo superantia, pallido-rosea, ungue glabro in auriculas latas bene erosulas flabellatim dilatato et supra subito contracto in limbum

quadratum vix 1 mm. superantem et in linguas duas lineares circ. 3.5 mm. longas abeuntem; squamae faucis parvae quadratae integrae vel brevissime emarginatae. Stamina filamenta glabra. Ovarium ovatum uniloculare stylis tribus munitum. Capsula vix matura ovato-oblonga gynophoro sextuplo longior.

"China:—Yunnan, on the Bei-ma Shan, amongst rock and scrub by streams. Lat. $28^{\circ} 12' N$. Alt. 12,000 ft. Plant of 2 ft. Flowers pale rose. July 1917." G. Forrest. No. 14,322.

Silene (Melandryum) chungtienensis, W. W. Sm. Sp. nov.

Species ex affinitate *S. Delavayi*, Franch. et *S. melananthae*, Franch. a quibus habitu elatiore, caulibus floriferis haud infrarocularibus, petalis calycem vix excedentibus breviter bifidis, ungue stylopodioque pilosulis notata.

Planta elata 40–60 cm. alta perennis. Caudex crassiusculus radices fusiformes plures emittens. Caules 1–3, erecti, remotiuscule foliosi, pilis albidis glandulosis plus minusve dense induti. Folia basalia in petiolum vix discretum latum attenuata et subamplexicaulia, cum petiolo ad 9 cm. longa, ad 3 cm. lata; lamina anguste obovata vel oblanceolata, apice obtusa, margine sub maturitatem eciliata, in sicco papyracea, supra glabra scabridule papillosa, infra levior glabra vel ad nervos minute pilosula; caulina multo minora sessilia lanceolata vel linearilanceolata, longiuscule acutata, utraque pagina et margine pilis glandulosis dense obsita, superne in bracteas bracteolasque lineares glandulosas decrescentia. Inflorescentia elongata cymoso-racemosa laxa circ. 10-flora; pedicelli calyce plerumque multo breviores dense glandulosi. Calyx 11–12 mm. longus e basi truncata paulo angustata tubuloso-campanulatus, ad tertiam partem in lobos triangulares subacutos dense glandulosos divisus, extra ad nervos distinctos atropurpureos dense glanduloso-pilosulus, intervallis pergamentaceis fere glabris. Petala calycem vix quadrante superantia, saturate rosea, ungue dense pilosulo in auriculas magnas erosulas sensim dilatato et in laminam vix 3 mm. longam subquadrata ad tertiam partem sinu lato divisam abrupte contracto, lobis ovatis apice rotundatis; squamae faucis breves quadratae integrae vel breviter emarginatae. Stamina filamenta glabra. Ovarium oblongum uniloculare stylis tribus instructum. Capsula ovato-oblonga, gynophoro dense pilosulo triplo longior; semina reniformia minutissime tuberculata.

"China:—Yunnan, on the Chungtien plateau. Lat. $27^{\circ} 55' N$. Alt. 12,000 ft. Plant of 16–24 inches. Flowers dull deep rose. Stony pasture. Sept. 1913." G. Forrest. No. 11,270.

This new species is not unlike *S. Delavayi*, Franch., but is

taller; it is easily distinguished from its Chinese relatives by the hairy claw of the petals and the hairy stylopod.

Silene (Melandryum) dumicola, W. W. Sm. Sp. nov.

Species ex affinitate *S. platyphyllae*, Franch. (*Melandryum platyphyllum*, Williams); foliis crasse papyraceis ita perlate ovatis ut nonnunquam suborbicularia videantur, floribus albis margine roseo-tinctis, squamis faucis longis ad laminam corollae mediam attingentibus inter alia bene notata.

Planta elata ad 75 cm. alta, medio et supra ramosa. Radix crassa elongata perennis. Caules plerumque solitarii, in sicco straminei, sat foliosi, erecti, pilis albidis flaccidis plus minusve dense induti. Folia sessilia vel petiolo circ. 2 mm. longo vix discreto praedita; lamina 3-6 cm. longa, 2.5-4.5 cm. lata, late ovata vel ovata, apice subrotundata vel obtusa, breviter apiculata, basi rotundata vel late cuneata, margine pilis rigidis multum asperata, crasse papyracea, in sicco utrinque pallido-viridis, supra undique pilorum basibus incrassatis scabrida, infra pilis vel eorum basibus scabride induta; nervi 2-3 paria subobscuri infra paulo eminentes. Inflorescentia terminalis ad 25 cm. longa, 12 cm. lata, dichotome cymoso-paniculata cymis saepius trifloris; bracteae foliaceae 3-15 mm. longae ovato-lanceolatae vel lanceolatae, pilis glandulosis fulvidis dense praeditae; pedunculi primarii atque secundarii praelongi pilis glandulosis induti; pedicelli ad 1 cm. longi, ut pedunculi vestiti; bracteolae 2-3 mm. longae, lineari-lanceolatae. Calyx 12-14 mm. longus, tubuloso-campanulatus, basi vix constrictus, stramineus in sicco, ad quartam partem vel paulo ultra in lobos ovatos obtusos divisus, extra praesertim ad lobos pilis glandulosis dense indutus, tandem subglabrescens; costae inconspicuae. Petala calycem dimidio superantia, alba, margine pallide rosea, ungue glabro in auriculas fere integras sensim dilatato, et in laminam ovatam ad medium quadripartitam circ. 4 mm. longam expanso, lobis oblongis obtusis medianis majoribus; squamae faucis anguste spathulatae vel lingulatae integrae ad mediam laminam attingentes. Stamina filamenta glabra. Ovarium ovatum uniloculare stylis tribus munitum. Capsula ovato-oblonga gynophoro triplo longior; semina reniformia minute tuberculata.

"China:—Yunnan, on the Yung-pe Mountains. Lat. 27° 45' N. Alt. 10,000 ft. Plant of 20-30 inches. Flowers white, margined pale rose. In open situations on the margins of thickets. Sept. 1913." G. Forrest. No. 11,229.

Silene (Melandryum) epilosa, W. W. Sm. Sp. nov.

Species inter congeneres yunnanenses habitu altissimo, partibus undique glaberrimis, inflorescentiis praelongis, petalis calyce inclusis bene notata.

Planta elata ad 1.5 m. alta. Radix non visa. Caulis solitarius erectus strictus simplex vel pauciramosus, remotiuscule foliosus glaber. Folia basalia delapsa; caulina in petiolum vix discretum late marginatum attenuata; lamina cum petiolo 6-9 cm. longa, 1-2.2 cm. lata, plus minusve lanceolata, apice acuta breviter apiculata, margine paululo asperata, in sicco papyracea, utrinque glabra minute papillosa: costa media subconspicua; folia superne in bracteas vulgo 1-3 cm. longas lineari-lanceolatas vel lineares decrescentia. Inflorescentia terminalis praelonga ad 60 cm. longa angustissima e cymulis vulgo trifloris racemose dispositis suberectis longiuscule pedunculatis sed tamen internodia haud superantibus composita; pedunculi pedicellique ad 5 cm. longi glabri. Calyx circ. 9 mm. longus e basi paulo angustata tubuloso-campanulatus viridis apice purpurascens, ad quintam partem in lobos ovatos obtusos divisus glaber costis haud conspicuis. Petala vix ad basim lorum calycinorum pertinentia, pallide rosea, ungue glabro in auriculas bene distinctas integras sensim dilatato et in laminam 1 mm. longam ad medium partitam exiente, lobis integris; squamae brevissimae lunatae integrae. Stamina filamenta glabra. Ovarium ovato-oblongum uniloculare stylis tribus coronatum. Capsula gynophoro brevissimo praedita seminibus minute tuberculatis.

"China:—Yunnan, at the south end of the Teng-yueh valley. Lat. 25° N. Alt. 6000 ft. Plant of 3-4½ ft. Flowers pale rose. Open limy pasture. July 1912." G. Forrest. No. 8532.

A very tall glabrous species, further distinguished by the small corolla which is included in the calyx. It is not closely allied to any of the described species of Western China.

Silene (Eusilene) esquamata, W. W. Sm. Sp. nov.

Species affinis *S. grandiflorae*, Franch. a qua calycis dentibus rotundatis, ungue exauriculato, squamis faucis deficientibus bene notata.

Planta 30-50 cm. alta, perennis, infra bene foliosa. Radix elongata fusiformi-incrassata. Caules plerumque 2-6, erecti, graciles, ramis erectis substrictis ramosi, ad inflorescentiam paucifoliati, plus minusve albido-pubescentes. Folia basalia emarcida caulinis subsimilia sed longius petiolata; caulina breviter connata, in petiolum latum haud bene discretum attenuata,

2-3.5 cm. longa, 6-11 mm. lata, plerumque oblanceolata, apice breviter acutata et apiculata, basi cuneata, margine minute asperata, membranacea, ad basim albido-ciliolata, ad costam prominulam sparsim pilosula, ceteroquin glabra vel subglabra, nervis obsolete; superiora multo minora lineari-lanceolata vel linearia, tandem in bracteas lineares vel subulatas circ. 5 mm. longas transeuntia. Inflorescentiae terminales laxae paniculato-cymosae ad 20 cm. longae, ad 12 cm. latae, cymis plerumque trifloris; axes praelongi rigidiusculi, longe subnudi, albi, pilosuli et sparsim glandulosi; pedicelli calyce multo longiores glandulosi. Calyx 17-18 mm. longus, longe clavato-tubulosus, basi paulo angustatus, dentibus rotundatis vel subdeltoideis tantum 1 mm. longis praeditus, in alabastro extra sparsim albi-pilosus, sub anthesin glaber vel subglaber nisi ad nervos plus minusve virides (intervallis albido-pergamentaceis) sparsissime pilosulos et ad dentes extra densissime albi-pilosulos. Petala calycem circ. 8 mm. superantia, rosea, ungue glabro supra sensim dilatato exauriculato, deinde vix contracto, in laminam oblanceolatam circ. 1 cm. longam ad medium divisam transeunte, lobis oblongis circ. 5 mm. longis apice rotundatis nonnunquam paucidentatis; squamae faucis nullae. Stamina filamenta glabra. Ovarium anguste oblongum uniloculare parietum vestigiis instructum gynophoro brevius stylis tribus praeditum. Capsula ovato-oblonga, alte trilobularis, gynophorum aequans.

"China:—Mekong-Salween divide, Yunnan, in open stony pasture. Lat. 28° 10' N. Alt. 6000-7000 ft. Plant of 12-20 inches. Flowers rose-pink. August 1917." G. Forrest. No. 14,609.

***Silene grandiflora*, Franch., var. *xerobatica*, W. W. Sm.**
Var. nov.

A typo habitu nano, foliis linearibus circ. 2 mm. latis, calyce corollaeque minoribus recedit. Structura calycis laminaeque corollinae squamarumque cum ea typi congruit. Capsula deest.

"China:—Yunnan, on the Tong Shan in the Yangtze bend. Lat. 27° 20' N. Alt. 9000 ft. Plant of 6-12 inches. Flowers pale vermilion. Dry stony pasture. Sept. 1913." G. Forrest. No. 10,995.

***Silene (Melandryum) kermesina*, W. W. Sm. Sp. nov.**

Species affinis *S. platyphyllae*, Franch. a qua calycis corollaeque forma longe distat.

Planta elata ad 60 cm. alta, bene foliosa, perennis. Caules 1-3, in sicco straminei, ramosi, erecti, graciles, pilis parvis albidis conspersi. Folia sessilia vel rarius petiolo circ. 1 mm. longo

instructa; lamina plerumque 3-6 cm. longa, 1-2.5 cm. lata, ovata vel ovato-lanceolata, apice sensim et longiuscule acuminata breviter apiculata, basi rotundata, margine pilis rigidis asperata, tenuiter membranacea, supra minute asperulata, infra pallido-viridis asperulata, utrinque ceteroquin glabra, costa media sparsim pilosula excepta. Inflorescentia terminalis laxa ad 9 cm. longa, ad 12 cm. lata, dichotome cymosa, saepius 7-flora; bracteae 5-15 mm. longae, foliaceae, lineari-lanceolatae, glanduloso-pilosae; pedicelli 1-6 cm. longi, pilis glandulosis densiuscule conspersi. Calyx 12-13 mm. longus, tubuloso-campanulatus, basi vix constrictus, in sicco purpurascens, ad quartam partem in lobos triangulares apice in caput membranaceum orbiculare 1 mm. diametro expansos divisus, extra sparsim glanduloso-pilosulus. Petala calycem 5-6 mm. tantum superantia, atrokermesina, ungue latiusculo mox in auriculas paululo erosulas dilatato et in laminam ovatam ad duas partes quadrifidam 3-4 mm. longam expanso, lobis quadrato-oblongis medianis majoribus; squamae faucis quadratae parvae integrae. Staminum filamenta glabra. Ovarium ovatum uniloculare stylis tribus ovarium aequantibus munitum. Capsula ovato-oblonga gynophoro quadruplo longior; semina reniformia minute tuberculata nigrida.

"China:—Yunnan, Kari Pass, Mekong-Yangtze divide. Lat. 27° 40' N. Alt. 10,000 ft. Plant of 2 ft. Flowers deep lake crimson. Open stony pasture and by streams. Aug. 1914." G. Forrest. No. 12,913.

Silene (Melandryum) lichiangensis, W. W. Sm. Sp. nov.

Species affinis *S. platyphyllae*, Franch.; foliis basi longe attenuatis fere glabris, ungue petalorum in auriculas latas erosulas dilatato, lamina ad medium partita, squamis denticulatis bene notata.

Planta 20-30 cm. alta perennis. Radices plures anguste fusiformes. Caules plures basi subdecumbentes deinde erecti, pauciramosi, bene foliosi, pilis glandulosis albidis vel rubidis plus minusve dense induti. Folia basalia delapsa; caulina in petiolum vix discretum latum marginatum longe attenuata superiora subsessilia; lamina cum petiolo 4-6 cm. longa, 1-1.5 cm. lata, apice longiuscule acutata breviter apiculata, margine minute asperata nonnunquam purpurascens, membranacea, utrinque glabra vel fere glabra ad insertionem sparsim ciliata, utrinque papillosa. Inflorescentia terminalis dichotome cymosa, plerumque 7-flora; pedicelli ad 5 cm. longi calycem longe superantes pilis glandulosis rubidis dense obsiti; bracteae foliaceae 3-15 mm. longae superne decrescentes ovatae vel lanceolatae ad

costam marginesque rubido-glandulosae. Calyx circ. 15 mm. longus e basi truncata paulo angustata tubuloso-campanulatus purpurascens fere ad quartam partem in lobos oblongos obtusos divisus extra fere undique sed praesertim ad nervos pilis glandulosis indutus. Petala calycem quadrante superantia, laete rosea, ungue glabro in auriculas latas crebre erosulas cito dilatato et in laminam basi ovatam circ. 4 mm. longam ad medium partitam abrupte contracto, lobis suborbicularibus apice 2-3-dentatis; squamae faucis breves quadratae 2-3-dentatae. Stamina filamenta glabra. Ovarium ovato-oblongum uniloculare stylopodio triplo longius stylis tribus coronatum. Capsula matura deest.

"China:—Yunnan, on the eastern flank of the Lichiang Range. Lat. 27° 40' N. Alt. 11,000 ft. Plant of 9-12 inches. Flowers bright carmine. Open situations in pine forests. Aug. 1910." G. Forrest. No. 6305.

Silene (Melandryum) Monbeigii, W. W. Sm. Sp. nov.

Species affinis *S. trachyphyllae*, Franch. a qua habitu humiliore, foliis multo minoribus oblanceolatis obtusiusculis, calycibus multo brevioribus, squamis faucis apice rotundatis inter alia divergit; a *S. rubicunda*, Franch. habitu, foliis, calycis dentibus, lamina petalina haud quadriloba distinguitur.

Planta 15-50 cm. alta perennis. Radix praelonga fusiformi-incrassata. Caules permulti, primo decumbentes deinde erecti, fere a basi ramosi et multum intertexti, graciles, bene foliosi, pilis glandulosis albidis induti. Folia basalia delapsa; folia caulina fere sessilia petiolulo 1 mm. longo late marginato praedita; lamina 1-2 cm. longa, 4-7 mm. lata, oblanceolata vel raro fere obovata, apice obtusa vel breviter acutata minute apiculata, basi in petiolum sensim attenuata, margine ciliolata, membranacea, in sicco utrinque pallido-viridis, utrinque plus minusve pilosula, nervis obscuris; folia superne in bracteas 2-8 mm. longas lanceolatas vel lineares transeuntia. Inflorescentiae ramulos terminantes cymosae 3-7-florae plerumque triflorae; pedicelli ad 1.7 cm. longi dense glanduloso-pilosuli. Calyx 15-16 mm. longus, clavato-tubulosus, basi umbilicatus et paulo angustatus nervis 10 purpurascentibus, fere ad quartam partem in lobos triangulares acutos divisus, extra dense glanduloso-pilosulus. Petala calycem circ. 1 cm. excedentia, rosea, ungue glabro supra sensim dilatato vix auriculato in laminam obovatam circ. 7 mm. longam breviter emarginatam parce erosulam infra medium nonnunquam dentatam expanso; squamae faucis breves ovatae vel semiorbiculares vulgo integrae. Stamina filamenta glabra. Ovarium ovato-oblongum uniloculare stylis tribus praeditum.

Capsula ovato-oblonga gynopodio vix longior seminibus dense et minute tuberculatis.

China :—N.W. Yunnan. Monbeig. No. 37.

"Mekong valley, Yunnan. Lat. $28^{\circ} 12'$ N. Alt. 7000 ft. Plant of 6–20 inches. Flowers pink. Open dry stony situations. July 1917." G. Forrest. No. 14,104.

Silene (Melandryum) oblanceolata, W. W. Sm. Sp. nov.

Species affinis *S. Delavayi*, Franch. et *S. melanantha*, Franch.; a priore pedicellis longioribus, floribus multo minoribus pallidis inter alia divergit; ab altero foliis oblanceolatis obtusis, floribus haud atropurpureis praeter alia signa recognoscitur.

Planta nana ad 15 cm. alta perennis. Radix fusiformi-incrassata. Caules plerumque 2–4, origine infrarosulares, erecti, simplices vel pauciramosi, sparsim foliosi, pilis albidis glandulosis plus minusve induti. Folia rosulata in petiolum latum marginatum laminam subaequantem attenuata, cum petiolo 4–10 cm. longa, 1–2.5 cm. lata; lamina oblanceolata, apice vulgo obtusa breviter apiculata, basi sensim cuneata, margine minute ciliata, membranacea, in sicco utrinque pallido-viridis, glabra vel fere glabra, utrinque papillata, costa media straminea, nervis ceteris subobscuris; folia caulina inferiora pauca basilaribus similia sed breviora, supra mox in bracteas ad 2 cm. longas lanceolatas vel lineari-lanceolatas utrinque glanduloso-pilasas decrescientia. Inflorescentia terminalis subscapiformis laxa dichotome cymosa, plerumque 3–9-flora; pedicelli 3 cm. longi vel ultra calycem longe superantes dense glanduloso-pilosi; bracteolae lineares glandulosae. Calyx 12–13 mm. longus, e basi truncata paulo angustata tubuloso-campanulatus, pallido-rubicundus, ad sextam partem in lobos triangulares obtusiusculos purpurascentes dense glandulosos divisus, extra ad nervos distinctos dense glandulosus, intervallis pergamentaceis fere glabris. Petala calycem quadrante vix superantia, rosea, ungue glabro in auriculas paululo erosulas sensim dilatato et in laminam circ. 4 mm. longam ad duas partes quadrilobam expanso, lobis medianis majoribus oblongis saepe iterum partitis vel denticulatis, exterioribus lineari-oblongis; squamae faucis breves quadratae apice nonnunquam denticulatae. Stamina filamenta glabra. Ovarium ovato-oblongum uniloculare stylis tribus coronatum. Capsula ovato-oblonga, gynophoro quadruplo longior; semina reniformia cristis undique ornata.

"China :—Yunnan, on the Mekong-Salween divide. Lat. $28^{\circ} 10'$ N. Alt. 11,000 ft. Plant of 4–6 inches. Flowers pale rose-magenta. Open stony pasture and on the ledges of cliffs. Sept. 1914." G. Forrest. No. 13,331.

The following is closely allied and probably a white form of the preceding :—

"China :—Yunnan, Lichiang Range. Lat. 27° 30' N. Alt. 10,000 ft. Plant of 2-6 inches. Flowers white. On humus-covered boulders. Aug. 1913." G. Forrest. No. 10,909.

***Silene (Melandryum) praticola*, W. W. Sm. Sp. nov.**

Species ex affinitate *S. dumicola*, W. W. Sm. a qua foliis acutis vel subacuminatis, inflorescentiis congestis, calycis costis distinctissimis, petalorum lamina aliter fissa inter alia removitur ; a *S. platyphylla*, Franch. petalis albis quadrilobis inter signa alia est divisa.

Planta elata ad 60 cm. alta, simplex vel medio ramosa. Radices plures tuberoso-fusiformes. Caules solitarii, in sicco straminei, sat foliosi, erecti, pilis albidis flaccidis plus minusve dense induti. Folia sessilia vel brevissime petiolata ; lamina plerumque 4-7 cm. longa, 2.5-3.5 cm. lata, ovata, apice acuta vel subacuminata, breviter mucronulata, basi rotundata, margine pilis rigidis asperata, subpapyracea, in sicco utrinque pallido-viridis, supra undique scabrida, infra ad nervos 2-3 paria eminentes pilis asperata, ceteroquin pilosula atque scabridula. Inflorescentia terminalis 5-7 cm. longa, 6-9 cm. lata, congesta, cymoso-corymbosa ; bracteae ovato-lanceolatae vel lanceolatae, foliaceae, ut folia indutae, supra sensim decrescentes ; bracteolae lineari-lanceolatae foliaceae ; pedunculi pedicellique breves rigidi densissime albido- vel fulvido-pilosi ; pedicelli calycem subaequantes vel breviores. Calyx 14-16 mm. longus, tubuloso-campanulatus, basi vix constrictus, in sicco stramineus, ad quartam partem vel paulo ultra divisus, extus ad costas distinctissimas setoso-pilosus, intervallis glabris pergamentaceis ; lobi ovati, marginibus partis superioris ita ventrali-adpressis ut acumen 2 mm. longum formatum sit. Petala calycem triente superantia, alba, roseo-suffusa, ungue in auriculas integras sensim dilatato et in laminam ovatam quadrilobam expanso, lobis medianis multo majoribus oblongis, lateralibus multoties minoribus ; squamae breves quadrato-oblongae integrae. Stamina filamenta glabra. Ovarium ovatum uniloculare stylis tribus instructum. Capsula ovato-oblonga, gynophoro triplo longior ; semina reniformia minute tuberculata, nigra.

"China :—Yunnan, mountains N.W. of Chien-chuan. Lat. 26° 50' N. Alt. 9000 ft. Plant of 2 ft. Flowers white, flushed rose. Dry stony meadows. July 1914." G. Forrest. No. 13,037.

This species is closely allied to *S. dumicola*, W. W. Sm.,

described above, and is well distinguished by the congested corymbose inflorescence and the entirely different calyx.

Silene (Melandryum) salweenensis, W. W. Sm. Sp. nov.

Species affinis *S. Monbeigii*, W. W. Sm. a qua foliis majoribus obovatis, calyce aliter diviso, corollae lamina aliter secta differt; a *S. viscidula*, Franch. et *S. langkongensi*, Franch. calycis forma et laminae lobis longe distat.

Planta 40-60 cm. alta. Radix non visa. Caules ut videtur 3-4, primo ascendentes deinde erecti, ramosi vel subsimplices, bene foliosi, infra albido-pubescentes, supra plus minusve glandulosi. Folia caulina breviter connata in petiolum latissimum vix discretum attenuata; lamina 2-4 cm. longa, 1-2.2 cm. lata, obovata, apice rotundata vel obtusa acumine ipso breviter apiculata, basi late cuneata, margine asperato-ciliolata, membranacea, tactu papillis scabridula, ad costam prominulam infra sparsim pilosula, ceteroquin glabra vel subglabra; folia superne in bracteas multo minores ovatas vel lanceolatas vel lineares dense glanduloso-pilosulas abeuntia. Inflorescentiae terminales cymosae 7-15-florae; axes dense glandulosi; pedicelli inferiores calycem aequantes vel paulo longiores glandulosi. Calyx 12-13 mm. longus, medio circ. 3 mm. latus, anguste tubulosus sed vix clavato-tubulosus, basi umbilicatus et paulo angustatus, nervis 10 viridibus in sicco vix purpurascens, ad partem octavam in lobos rotundatos vel obtuse deltoideos purpureo-tinctos divisus, extra sparsiuscule glandulosus. Petala calycem circ. 5 mm. superantia, rosea, ungue glabro supra sensim dilatato in auriculas vix distinctas integras, deinde breviter contracto et in laminam ambitu suborbicularem circ. 3.5 mm. longam quadrilobam transeunte, lobis lateralibus ad dentes reductis, medianis quadrato-oblongis integris, sinu ad mediam laminam pertinente; squamae faucis parvae vix 0.5 mm. superantes oblongae integrae. Stamina ad medium calycem attingentia filamentis glabris. Ovarium breviter oblongum uniloculare stylis tribus quadruplo longioribus praeditum, gynophoro aequilongum. Capsula ovato-oblonga, gynophoro vix longior sexdentata.

"China:—Mekong-Salween divide, Yunnan, in open situations on the margins of scrub. Lat. 28° 12' N. Alt. 6000-7000 ft. Plant of 16-24 inches. Flowers rose-pink. Sept. 1917." G. Forrest. No. 14,764.

Sisymbrium yunnanense, W. W. Sm. Sp. nov.

Species ex affinitate *S. Loisellii*, Linn. a quo foliis omnino diversis, seminibus biseriatis inter alia recedit.

Planta ad 1.5 m. alta ut videtur biennis. Caulis crassus sub anthesi glaberrimus albido- vel purpurascenti-glaucus. Folia superiora petiolo 3-10 mm. longo sparsim albo-pilosulo praedita, circ. 10 cm. longa, circ. 3 cm. lata, lanceolata, indivisa, apice plus minusve acuminata, basi in petiolum alatum attenuata, margine remote et minute denticulata, membranacea, supra glabra vel subglabra, infra et ad marginem pilis albidis plus minusve dense conspersa; folia mediana paulo majora basi runcinato-divisa, segmento terminali multo majore, lateralibus paucis parvis; folia ad basim regionis floralis linearia vel lineari-lanceolata. Inflorescentia racemosa pauciramosa; axis glabra vel subglabra; pedicelli ad 1 cm. longi. Sepala 7-8 mm. longa, oblonga, obtusa, pallide viridia, margine anguste scariosa. Petala 9-10 mm. longa, anguste spathulata, pallido-flava. Siliqua vix matura ad 3.5 cm. longa seminibus biseriatis.

"China:—Mountains in the N.E. of the Yangtze bend, Yunnan, in stony situations amongst scrub. Lat. 27° 45' N. Alt. 10,000 ft. Plant of 4-5 ft. Flowers pale yellow. July 1913." G. Forrest. No. 10,593.

"On the Bei-ma Shan, Yunnan, in open situations by streams. Lat. 28° 12' N. Alt. 10,000 ft. Plant of 2-3 ft. Flowers pale yellow. June 1917." G. Forrest. No. 14,016.

Vaccinium oreotrephes, W. W. Sm. Sp. nov.

Species ex affinitate *V. viburnoidis*, Rehder et Wilson (mihi non visi); ramulis puberulis, foliis minoribus brevius petiolatis, calycis lobis glabris recedit.

Frutex 30-75 cm. altus ramis crassis; ramuli plus minusve crispato-pilosuli tarde glabrescentes, vetustiores cinerascetes. Folia petiolo crasso 1 mm. longo vel paulo longiore pilosulo praedita; lamina 3-4 mm. longa, 1.5-2 cm. lata, elliptica vel subobovata, apice obtusa vel rotundata, obtuse mucronata, basi late cuneata, denticulis adpressis crenato-serrulata, ad basim subintegra, coriacea, supra subnitenti-viridis ad costam impressam minute pilosula, infra pallidior glabra nervis 4-5 paribus cum costa paulo elevatis. Racemi ad apicem ramulorum congesti, circ. 1 cm. longi, 5-10-flori, glabri vel minute pilosuli; bracteae suborbiculares vel obovatae, 5-7 mm. longae, membranaceae, rubidae, minute ciliolatae, deciduae; bracteolae subellipticae circ. 3 mm. longae, albido-membranaceae, ciliolatae; pedicelli 1-3 mm. longi, glabri. Calyx cum receptaculo circ. 2 mm. longus glaber lobis 0.5-1 mm. longis latissimis marginem undulatum calyci efficientibus. Corolla circ. 6 mm. longa, urceolata, rosea, glabra, ore angusto, lobis minutis recurvis. Stamina filamentis basi dilatatis pilosis 2

mm. longis praedita; antherae 2 mm. longae dorso minute bicalcaratae. Stylus inclusus glaber stigmatе anguste capitato. Fructus (in sicco compressus) fere 1 cm. diametro niger seminibus ellipsoideis.

"China:—On the Bei-ma Shan, Yunnan, on open rocky moorland. Lat. 28° 12' N. Alt. 14,000 ft. Shrub of 2 ft. Flowers rose. July 1917." G. Forrest. No. 14,337.

"Mekong-Salween divide, Yunnan, in open rocky situations amongst dwarf scrub. Lat. 28° 12' N. Alt. 12,000–13,000 ft. Undershrub of 1–2½ ft. Flowers rose-red. June 1917." G. Forrest. No. 14,067.

"Sept. 1917. Duplicate in fruit; fruits black." G. Forrest. No. 14,830.

This species is closely allied to the Szechuan *V. viburnoides*, Rehder and Wilson, which has been found only once. The Forrestian plant is distinguished by the smaller leaves and eciliate calyx.

Vaccinium taliense, W. W. Sm. Sp. nov.

Species affinis *V. Doniano*, Wight et *S. mekongensi*, W. W. Sm. et *S. salweenensi*, W. W. Sm.; foliis parvis utrinque plus minusve pilosis, pedicellis pilosis, antheris biaristatis inter alia signa bene notata.

Frutex circ. 1 m. altus, ramosissimus, ramulis subtortuosis multo intertextis primo dense pilosis annotinis glabrescentibus cinerascens. Folia petiolo circ. 2 mm. longo dense fulvido-vel albido-pilosulo suffulta; lamina vulgo 2–3 cm. longa, 1–1.5 cm. lata, ovato-lanceolata vel subelliptica, apice acuta vel breviter acuminata, basi rotundata vel late cuneata, margine regulariter atque minute serrulata, membranacea, supra opacoviridis ad costam dense pilosula ceteroquin sparsim, infra pallidior undique plus minusve dense albido-pilosa, nervis 4–5 paribus subconspicuis. Inflorescentiae racemosae densiflorae; racemi circ. 4 cm. longi dense aggregati ex axillis foliorum delapsorum orientes; rhachis densiuscule pilosula; bracteae et bracteolae 2–3 mm. longae lanceolatae vel lineari-lanceolatae pilosulae cito deciduae; pedicelli circ. 1 mm. longi plus minusve pilosuli. Calyx plus minusve viridis ad lobos rubidus; tubus cum ovario circ. 1.5 mm. longus subglaber; lobi 1 mm. longi triangulares acuti albido-ciliolati. Corolla 5–6 mm. longa urceolata laete rosea extra ad apicem pilosula, intus ad lobos breves minute et sparsim pilosula. Stamina circ. 4 mm. longa filamentis dense albo-pilosulis antheris dorso longe biaristatis. Stylus circ. 5 mm. longus glaber. Fructus deest.

"China:—Western flank of the Tali Range, Yunnan, in

open situations amongst boulders. Alt. 8000-9000 ft. Shrub of 3-4 ft. Flowers bright rose, lined deeper. May 1917." G. Forrest. No. 13,715.

The western side of the Tali Range (from which this species comes) has not been explored botanically to any extent, and must contain many species of interest.